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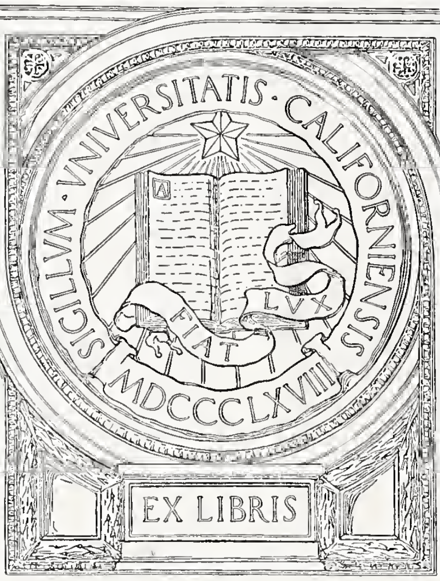

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Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 JANUARY, 1962 NUMBER 1

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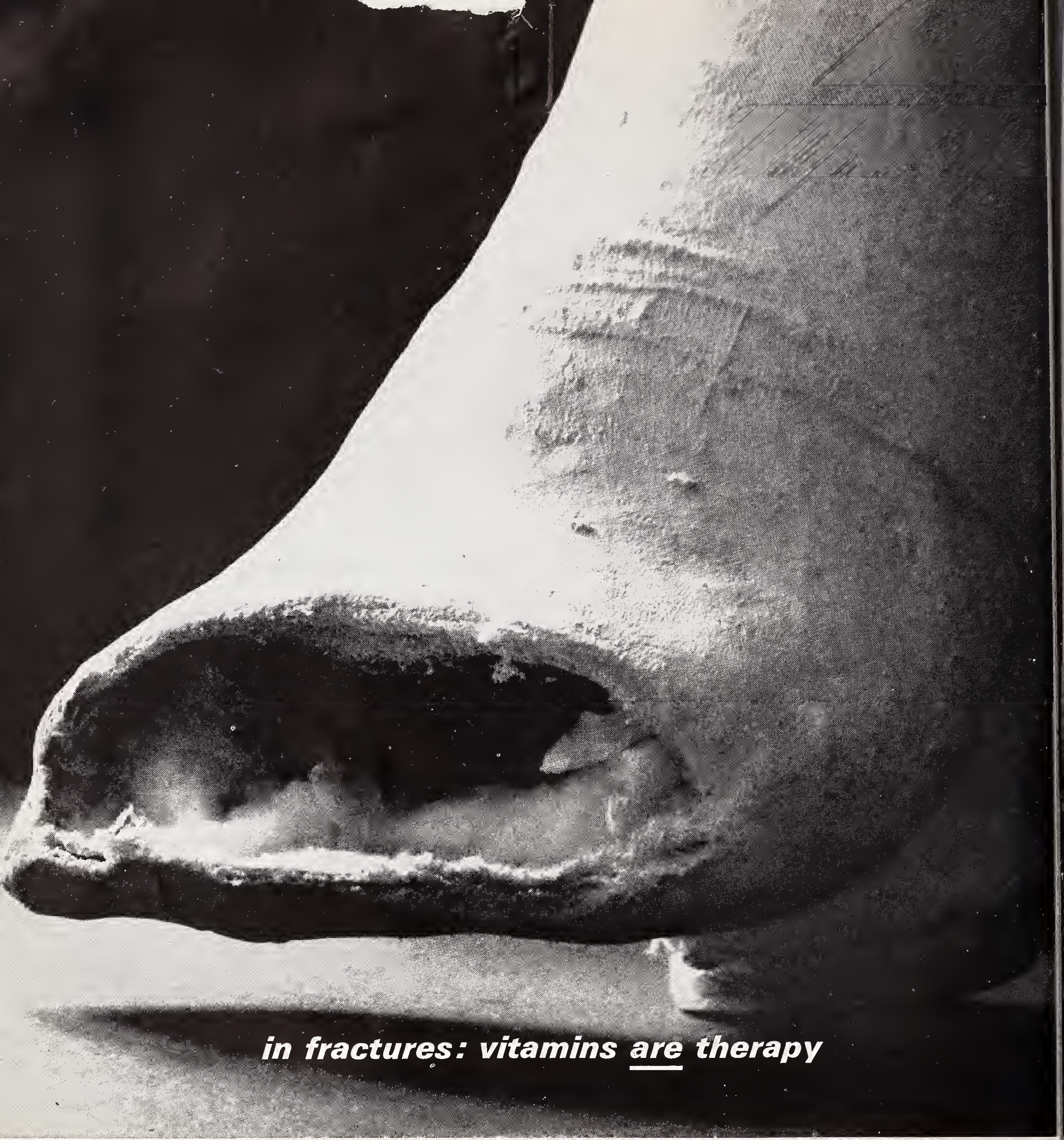

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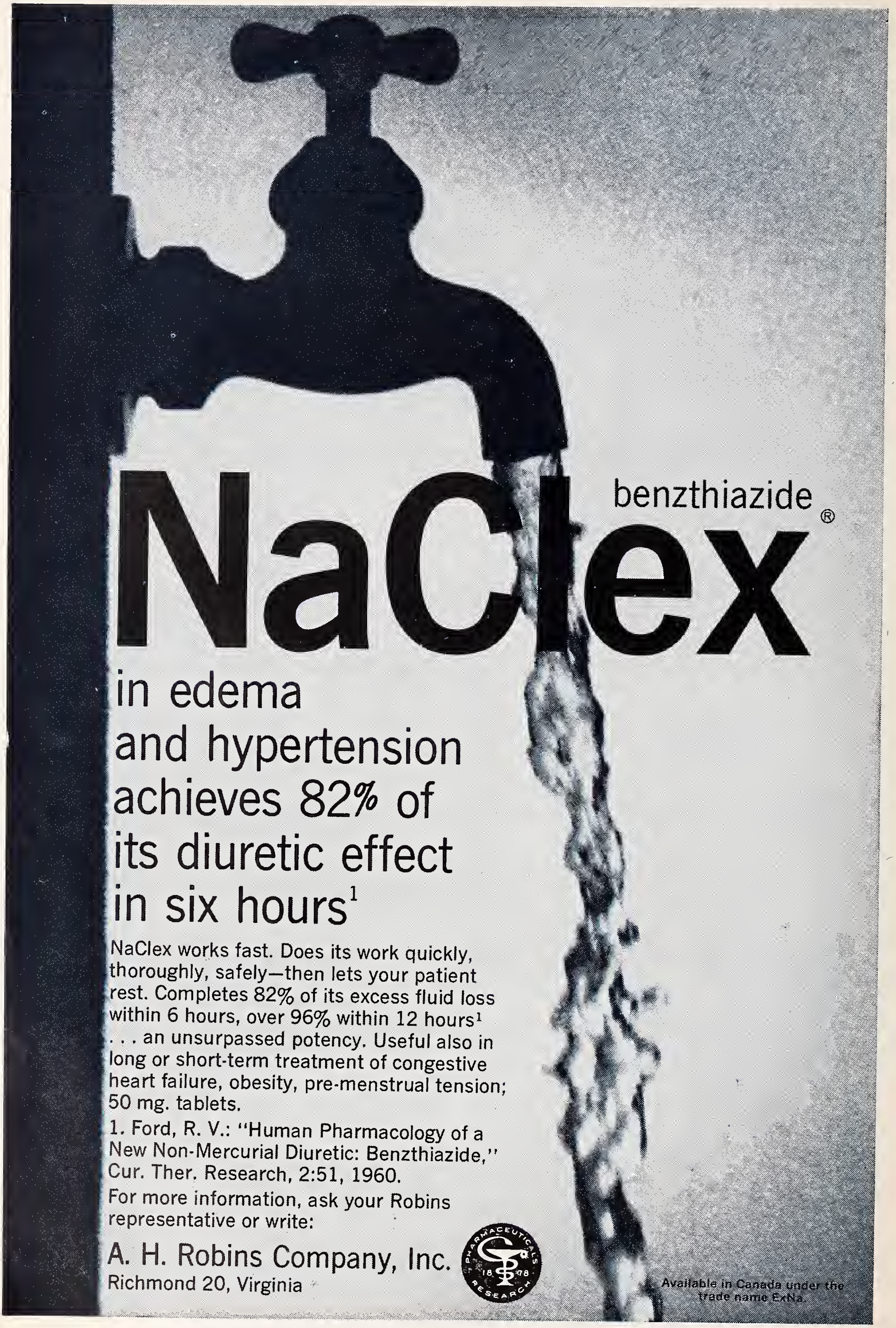

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Frontiers Of Medical Jurisprudence: Historical Background

Lee B. Greene, M.D.
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The origin of medical jurisprudence is as ancient as the pyramids. As early as 2500 B.C., Egyptian law and medicine were interrelated.[1] There was an extensive knowledge of medicine, clearly systematized that showed a much more scientific approach to medical problems than is generally realized. Co-existent with this medical knowledge was a definite system of law relating to crime, property, marriage and other civil matters.

The practice of medicine was subject to legal restrictions. Only members of a certain class were permitted to practice. The attending physicians were required, much as now, to study the precepts of medicine laid down by their predecessors in certain ancient writings. These ancient writings were probably derived from the precepts of the first man of medicine, one Imhotep,[2] and his followers about 3000 B.C. Imhotep, besides being the first medicolegal expert who combined the science of law and medicine, was also the Grand Vizier, Chief Justice and physician to King Zoser. As these matters were apparently not sufficient to occupy his time, he was also the architect of the first great pyramid at Zacara. This certainly made him the first medical-legal architect of all time.

The medical legal expert was first preoccupied as he is today with crimes against civilization. Pliny tells us that the bodies of those who died were examined to ascertain the cause of death, for which we know a fairly extensive knowledge of toxicology was required. An examination by a physician of the body of Julius Ceasar in 44 B.C. disclosed that of the 23 wounds inflicted upon him only one, penetrating the chest, was fatal. (Brutus'?)

It was almost 600 years after the death of Ceasar, however, that the medical legal expert arrived at status.

"Almost as if they were intended to be a lasting memorial to the fast-fading greatness of Rome, the Justinian enactments made their appearance between A.D. 529 and 564. They clearly recognized and defined an integrated medical profession, with required educational standards and standards of competency, in a way that had never previously been equalled. Moreover, the status and function of the medical expert in connection with legal procedures are indicated more clearly than ever before – MEDICI NON SUNT PROPRIE TESTES, SED MAJUS EST JUDICIUM QUAM TESTIMONIUM'[3] which freely translated means that the function of a medical witness is to assist the cause of justice but not as an ordinary witness who appears for one side or the other of a controversy."

"It was in this sense that the Justinian Code enjoined the cooperation of medical experts in a considerable variety of legal problems – e.g., in the determination of the existence of pregnancy; in cases involving sterility, impotence, legitimacy, rape, or poisoning; in cases involving the problem of survivorship; in cases which were complicated by the question of mental disease, and in other comparable circumstances. The Justinian enactments may be held to represent the highest point of achievement in the way of defined forensic medicine in the ancient world; elements of the Justinian Code were carried forward, and appear in many modern legal systems; and, indeed, nothing of comparable status is to be found until after the conclusion of the Dark and Middle Ages."[4]

Following the fall of the Roman Empire, there was no real development in forensic medicine. For

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a thousand years, not only medical and scientific thought stagnated, but there was in the field of law, a "corresponding deterioration which led to the absurd expedients of trial by ordeal and the widespread use of torture to extract confessions."[5]

With the dawn of the sixteenth century, the first progress in a thousand years developed in the field of forensic medicine. The early Germanic codes Bamberger (1507) and Caroline (1553) which provided for the use of expert medical testimony in cases of murder, wounding, hanging, poisoning, etc., were soon reflected in the rest of Europe. As scientific criminology became more advanced, the absurd nature of trial by ordeal and witchcraft began to be more generally accepted and their validity rendered of extremely dubious value.

And so as time went on and case books in law and medicine were studied and then taught in schools of higher learning throughout the civilized world through to the nineteenth and twentieth centuries, medicine and the law developed side by side and brushed one another from time to time.

Today, when one thinks of medicine and the law, he usually thinks of the medical witness. Actually, the two professions have been interrelated in three basic areas, the courts, public health and industrial health. It is with these areas that this paper is concerned. It is in these areas that the joint preoccupation and work of the future must be directed.

The Courts

The last 25 years has seen more frequent appearances of physicians in court. This has been in the role of pathologist, toxicologist or psychiatrist in criminal cases, or in the role of defendant in malpractice cases, or in the capacity of "expert witness" in civil personal injury actions.

A. *The Doctor In State Cases*

The exploits of the physician in the arena of the murder trial in the field of pathology and toxicology are well known. Perhaps the greatest contribution made by the medical profession to the law, certainly in the last half century, has been made by the psychiatrists with the adoption by the United States Supreme Court of the "Durham" rule.[6] Prior to the adoption of this rule, the MacNaghten rule was the law of the land.[7]

"Fifteen to twenty per cent of all deaths in the United States result from violence or occur unexpectedly from obscure causes. Each year, some 13,000 to 14,000 murders are officially recognized."[8] The importance to society of the "Durham" and "MacNaghten" rules which apply to crimes, therefore, cannot be over-emphasized.

As Ford interprets this rule,[9] the MacNaghten rule was established in England in 1843 and was, until recently, the basis for determining criminal responsibility in all states, in the federal courts and in the military courts martial. The rule provided that to escape responsibility for his crime, the defendant must show "he was laboring under such a defect of reason from disease of the mind as not to know the nature and quality of the act, or if he did know it, that he did not know he was doing what was wrong." This is not a test for sanity, but for criminal responsibility. Under this rule, the law held some insane men responsible for their crimes.

To analyze the rule, each phrase must be studied. The difference between "defect of reason and disease of the mind"—the psychiatrist had to establish mental disease.

The accused had to know the "nature of the act." The patient had to know that "pulling the trigger fires a cocked and loaded gun or that a sharp knife cuts skin."

The accused had to know the "quality of the act." "Quality" is best interpreted as meaning "harmfulness." The idiot who cut off the head of a sleeping man because he said it would be fun to see him looking for it when he awoke knew the nature, but not the quality of his act.

"Know that the act is wrong." Here the word "wrong" refers to the particular act and not a philosophical concept. It also means that the culprit knew that society considers the act wrong.

"Usually a crime requires an overt act plus a specific intent to do harm. Some crimes require premeditation. Psychiatric study may show that the defendant knew the act was wrong, but because of drunkedness, psychosis, or deficiency was unable to form the specific intent."[10] This would not be first degree murder for wilfulness and premeditation are lacking. It might, however, be second degree murder. If the defendant had killed while under an "irresistible impulse" to do so, in 12 states this was accepted as a defense. Otherwise, pyromania was arson and kleptomania was theft. "The MacNaghten principle applies equally to psychosis and mental deficiency."

This then, in essence, was the MacNaghten Rule.

As early as 1838, Isaac Ray, one of the founders of the American Psychiatric Association, called knowledge of right and wrong a "fallacious" test of criminal responsibility. In 1928, Mr. Justice Cardozo said "Everyone concedes that the present definition of legal insanity has little relation to the truths of mental life."

Finally, recognizing the progress of psychiatric learning, the court held in the Durham case that the "right-wrong" test is inadequate and that the rule now is "that an accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect." Of course, it remains true that to escape responsibility the 'mental disease' or mental defect must have a causal connection with the crime.

B. *The Doctor As A Defendant*

Through the medium of the malpractice case, the physician has been placed in an unfortunate light. The probability of the accusation of malpractice is an extremely disturbing one to the practicing physician. In some jurisdictions (fortunately, not so much in Connecticut) the number of malpractice claims have become an occupational hazard to the practioner. Although most malpractice claims are unjustifiable, one must understand that every patient, with an undesired end result, is a potential claimant. Before he finds himself in court, however, there are certain safeguards a physician can take to protect himself against unjustifiable claims. He should err on the side of thoroughness and exhaust laboratory and diagnostic aids; he should call consultants on the slightest indication; and he should observe patients over a longer period of time particularly when hospitalized. In general, "He must keep abreast of progress in his profession and utilize standard and accepted methods and procedures in diagnosis and treatment."[11] And above all, he must keep good records.

"Whether we like it or not, doctors' records have three uses (1) to record data about a patient which assists the doctor treating many patients to treat each individual patient; this results in (2) doctors being able to use this record to help them refresh a recollection concerning the patient in the event of litigation in which the patient is involved and (3) as a use by the doctor himself, if he is so unfortunate as to be called upon to be a defendant in a malpractice case arising out of his treatment.

Every patient that a doctor treats is a potential case in court, and his records of use in one of the three manners suggested above. Yet, it is true that a doctor treating a patient cannot keep one worried eye on the patient and the other on the county courthouse. Medical records are not and should not be kept in that fashion. A medical record is not the patient's record, but the doctor's record of the patient's case. The doctor has the personal right of professional self-preservation in the keeping of his records. Implicit in this is the necessity that he keep his records in such a fashion that in the event he is called upon to testify on behalf of the patient, or on behalf of himself, he will be able to do so. The doctor is the one who determines what goes into the record anyhow, and although the primary purpose of the record is to record the patient's case, we have seen its actual potential use in every case is threefold."[12]

The proceeding safeguards may not keep a doctor out of court as a defendant in a malpractice case, but they certainly go far toward making the plaintiff's burden of proving a case against him one which is extremely difficult to prove.

C. *The Doctor As A Witness*

The large volume of personal injury litigation brought about by a mechanized and highly industrialized society has resulted in increased demands upon the medical profession to give testimony in court. During this development, the legal profession, through the medium of seminars, lectures and continuing education, has established a brand of medical-legal experts (lawyers) schooled in the rudiments of the particular medical problems involved in the law with relative frequency. The increased sophistication of the members of both professions has brought about the "battle of experts" in the courtroom.

The "battle of experts" has brought about many demands for change. One of these is the so-called "impartial medical panel." The subject of medical testimony is an extremely complicated one involved with such things as credibility, opinion, power of observation and a thorough knowledge of the patient. There is no way to arrive at certainty. One qualified doctor's "reasonable probability" is as good as anothers. The present system, with its test of validity of the medical witnesses' testimony through extensive cross-examination, brings the judicial process a lot closer to the determination of truth than would the court-appointed "impartial experts." True, he also can be cross-examined, but the enormous prestige he carries as a court-appointed doctor would make "second class" opinions out of those of equally qualified colleagues who happened to appear for one side or the other.

Space does not permit the writer to delve further into the subject of the "Doctor as a Witness" as it is covered elsewhere in this issue, but suffice it to say that if the physician is scientific in his diagnosis and treatment and accurate in his testimony, he need have no fear that his experience of testifying in a courtroom will be other than a pleasant one.

Public Health

Nowhere has the cooperation of the medical and legal professions resulted in so much good to the public as it has in the field of public health. The results of this cooperation have been dramatic.

In 1647, the Governor and Company of Massachusetts Bay passed a quarantine act to prevent a threatened epidemic of yellow fever. This was the first recorded act of sanitary legislation in North

America. The several American colonies soon followed by enacting laws to control small-pox and yellow fever by quarantine legislation.[13]

After the United States Constitution was adopted which made public health a continuing function of the several states, many communities set up local health boards. Philadelphia set up a Board of Health in 1793. New York in 1796 and Boston in 1797. The first State Board of Health wasn't established until 1869 when Massachusetts did so.

With the development of bacteriology in its relation to public health during the latter 19th and early part of the 20th century, the law began to move in the wake of medical progress. For example, in 1893, primarily through the work of William Hallock Park and Alfred L. Beebe, his assistant in the bacteriological laboratory of the New York City Health Department, it was concluded "that the members of a household in which a case of diptheria exists should be regarded as sources of danger unless cultures from their throats show the absence of diptheria bacilli."[14] This medical fact was translated into Public Health Regulations as part of the "Police Powers" of a municipality into the right of "quarrantine" and isolation of houses and people to prevent epidemic; an outstanding example of medical-legal teamwork. Indeed, the laws relating to vaccination in towns, states and for immigration are another such example.

The diagnostic laboratory as part of a Public Health Department was born of an awareness of bacteriological development. As these departments grew, the responsibility of government to protect the health of the people became increasingly obvious, not only as a medical, but as a legal-political fact. As Rosen points out "The laboratory represented the practical outcome of the micro-biological period, just as the organization of the health department had been a product of the earlier sanitary reform movement. Just as the health department provided an appropriate administrative mechanism for dealing with community health problems, so the public health laboratory provided a suitable scientific tool for the implementation of the public health program."[15]

Of course, the Public Health program continues to have as its major objectives the protection of the community from communicable diseases and higher sanitation standards in the environment. These objectives continue to necessitate the combined forces of medicine, the law, social agencies and an informed public.

But, the solution of one problem merely brought to light others. "It became evident, for instance, that steps taken to clear up the environment of urban areas, while of great value, were of little avail in dealing with problems of maternal and child welfare, of tuberculosis, or with a number of other health problems found among the poorer classes of the community."[16] And so after World War I and after World War II, there were spurts of concerted action dealing with problems of social welfare. Indeed, a "welfare state" was created during the Roosevelt administration. It was not only the liberal who had a part in this development, however, for "social-minded conservatives had part in it."

It has always been abundantly clear that ill health and poverty have been constant companions. In the homes of the poor, Devine said, "we find the dire consequences of death and disease, of unemployment and under-employment, of overwork and nervous strain, of dark and ill-ventilated and overcrowded rooms, undernourishment and exposure and poisoned foods, of ignorance and maladjustment."[17]

The educated American public, speaking through their elected representatives, adopted vast programs of social security, unemployment compensation, public health and urban redevelopment on a national and state level. Thus, the realization of years of dreams of doctors, lawyers, social workers and clergymen were realized. The United States Department of Health became the Department of Health, Education and Welfare and thus, the scope of public responsibility was defined.

"The modern conception that the national government is responsibile for the health of the people is but a natural extension of the previous view where the local community provided for such needs. . . . By and large, the trend today is for the national health agency to wield the greatest influence in endeavoring to remove those notorious obstacles to human improvement, the five giants of Lord Beveridge: want, disease, ignorance, squalor and idleness."[18]

Disease and poverty join hand in hand through lack of sanitary facilities, inadequate housing, poor nutrition, lack of education and an adequate wage.

Viewed from this vantage point, the clear duty and enormous opportunity of the combined talents of the medical and legal professions, with their great prestige and power for good, is to take the road clearly laid out to create and fight for a comprehensive program designed to continue to raise the standard of living of our people through the elimination of the ills described before.

Indeed, the political international realization of the fact that health is an international problem resulted in the development of the World Health Organization and its predecessors. Although not an entirely new concept for it dates back to the quarrantine of ships plying international waters, international health cooperation has grown out of a broadening realization that in a world contracting because of technological evolution and increasingly complex international economic and political interdependence, the presence of disease in one area constituted a continuing danger for many others.

The future holds for our professions the promise of joint participation in solving the problems of infectious disease, industrial hazards and disease, the problems of the aged, the problems of rehabilitating the victims of disease and accidents. We can turn our efforts to solving the problems of mental health, increased life expectancy, accident prevention, chemical pollution, pure food and drugs. Preventive health programs and working for social, economic and political reforms to bring these changes about should be our mark.

We should set our sights on the problems of atmospheric pollution whether from the point of view of nuclear fall-out as well as polluted smog and atmospheric carcinogens. "Stocks and Campbell in England, studying the problems of lung cancer, have reported that concentrations of smoke, sulpurdioxide benzpyrene and other polycyclic hydrocarbons rise with increasing urbanization. . . . In short, the atmosphere of the modern industrial community is a carcinogenic sea, polluted and made murky by many sorts of industrial waste. In such an environment, it is hardly possible to avoid daily contact with cancer-producing agents."[19]

Abraham Ribicoff, Secretary of Health, Education and Welfare, in an interview with Ernest L. Barcella published recently,[20] had this to say on this subject. "The rapid urbanization and industrialization of America pose new health problems. Today, two-thirds of the country's population live in big metropolitan centers. By 1975, the proportion will be three-fourths. Along with this stepped-up urbanization has been the phenomenal growth of industrial production in the last 50 years—some 700 per cent.

These greatly expanding cities and industries together have spawned a by-product to their growth that is a menace to health. They dump great quantities of waste materials—gases, chemical residues, sewage—into the air we breathe and the water we use.

Some of the wastes can be treated or otherwise disposed of so that they have no injurious effect on health. But some of this "garbage" that spouts from smokestacks and automobile exhausts and drains out of industrial plants is a health menace. It pollutes our air and water supplies and is a disease-breeder.

Our scientists are studying the extent to which air pollution may be linked to lung cancer, some forms of heart disease and chronic bronchitis.

Ways are being sought to curb and control this source of illness. Scientific "detectives" are keeping air and water pollutants under surveillance. Not widely known, for example, is the fact that the National Air Sampling Network keeps track of air-borne chemicals in 250 cities and non-urban areas. Samples of air and water are being analyzed and tested on laboratory animals. Engineers and scientists are seeking ways to rid the air of any contamination; searching for effective means of purifying water."

The legal profession must use its influence and resources to help the medical profession in this important work.

Of particular importance in the future is the problem of disposal of radioactive wastes. It would, of course, be preferrable if none were created. Short of this, efforts must be made to devise means of disposing of these wastes or protection from them.

Industrial Health

During the last years, the health of the worker has been an area in which doctors and lawyers have been and will continue to be actively engaged. Although we are prone to think in terms of workmen's compensation, of equal importance has been the contributions of the professions in terms of laws and regulations relating to the health of the worker.

Minimum ages for workers, minimum wages for workers, factory inspections by labor departments are "old hat" today. In 1910, the first National Conference on Industrial Diseases was held in Chicago. Alice Hamilton began her great work by publishing a report on lead poisoning. Later mercury used in the hatting industry was banned. The Surgeon General of the United States began to get increased powers. Poisons and processes were banned, etc.

"It is obvious that the field of occupational health is large and complex and is likely to become even more so as industry changes and develops in the wake of scientific and technological advances. . . . Important advances have been made. . . . While an immense amount of research has been done, much knowledge still remains unapplied. Furthermore, we can now see that the health of the worker in the plant cannot be compartmentalized. Conditions of life in the home as well as conditions of work in the factory have important effects on the worker's health, and we cannot effectively prevent ill health unless this is fully recognized. It is being increasingly realized that industrial medical care must be coordinated with the general medical care received by workers and their families" . . . The ultimate solution will no doubt be shaped by the way in which the organization of medical care will develop, particularly under the influencing of prepayment.[21]

The progress that has been achieved in industrial health has seen the two professions fighting side by side with social workers and clergymen. Only through the concerted cooperation of all of these same forces can this progress continue.

The 20th century has seen medicine "allied with other sciences drawing on physics for electronic equipment, on biochemistry for diagnostic aid, on sociology and anthropology for an understanding of endemic diseases. In this process of amalgamation, the old frontiers between anatomy and physiology, between the organic and the inorganic become too blurred to have any further meaning."[22] Doctors have come to understand a kind of scientific interdependence. They now must fully appreciate a scientific-social interdependence with other groups and professions. The time for professional isolationism is long since gone.

The atomic age has produced the use of radioactive substances in diagnosis and therapy. Workers in these fields must be protected against dangerous exposures and populations from radioactive wastes and foods contaminated by fallout from nuclear bomb tests. Medicine and the law have become international in scope with the creation of world political and health organizations. The future holds only the promise of the opportunity for both professions to work for the future—now.

REFERENCES

1. Smith, S. A.: The development of forensic medicine. Virginia Law Weekly, Dicta 10: 4-15, 1959.
2. Sethe, K.: Imhotep, der Asklepios Der Aegypter. Berlin, 1902, Vol ii, P. 134.
3. Supra, Note 1.
4. Supra, Note 1.
5. Supra, Note 1.
6. Durham vs. United States, 214 Fed Rep. 2nd 862.
7. McNaghten—8 Eng. Rep. 718.
8. Regan, L. J.: Medico-Legal Symposium, New York, October 30, 1955, Law Department and Committee on Medico-Legal Problems, A.M.A., Chicago, Illinois.
9. Medical Jurisprudence—A syllabus for students at Boston University, Harvard, Tufts and Yale Medical Schools compiled by Richard Ford, M.D.
10. Supra.
11. Supra, Note 8.
12. Koskoff, Theodore I.: A primer for medical evidence. Medical Trial Technique Quarterly, 1956, Annual Pg. 386—Callaghan & Co., Chicago, Illinois.
13. Tobey, J. A.: The national government and public health. Johns Hopgins Press, 1926.
14. Rosen, George A.: History of public health. M. J. Publications.
15. Ibid.
16. Ibid.
17. Devine, E. T.: When social work was young. MacMillan, 1939, New York.
18. Ibid, note 14.
19. Ibid, note 14.
20. Today's Health—August, 1961.
21. Ibid, note 14.
22. M.D. Medical Newsmagazine, Vol. 5, No. 10, October, 1961.

> *Those who refuse to go beyond fact rarely get as far as fact . . . Almost every great step (in the history of science) has been made by the "anticipation of nature" that is, by the invention of Hypothesis which, though verifiable often had very little foundation to start with."*
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> —T. H. Huxley

Rules And Responsibility

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> *"Human nature, like human life has complexities and diversities too many and too intricate to be compressed within a formula."*—Justice Cardozo[1]

It is appropriate that this series of special publications of CONNECTICUT MEDICINE commemorating the twenty-fifth anniversary of its publication should present an issue devoted to Medicine and Law. A little more than twenty-five years ago, the School of Medicine and the School of Law of Yale University collaborated in the creation of an institute to foster interaction between Medicine and Law among other disciplines concerned with man as a social being. In 1931, Justice Cardozo observed that medicine had done much for jurisprudence by laying stress upon the value of institutes of research citing Yale as one of the leaders. Almost twenty-five years later (1954), the late distinguished psychiatrist-historian Gregory Zilboorg, recipient of the Isaac Ray Award of the American Psychiatric Association (conferred upon the person deemed most worthy by reason of his contribution to the relations of psychiatry and law) observed ". . . Yale, more than any University today, symbolizes the striving to bring about a healthy and humane synthesis between law and psychiatry."[2] In 1953, the Yale Law Journal published the Doe-Ray Correspondence, which records the interchange of ideas of Judge Charles Doe of the New Hampshire Superior Court and Dr. Isaac Ray. (Louis E. Reik)[3] This "Pioneer Collaboration in Jurisprudence"[4] culminated in the New Hampshire Rule (1870), which held that an accused was not legally responsible if the criminal act were the product of mental disease regardless of whether or not he knew the difference between right and wrong at the time the act was committed.

Today, if one were to ask what contribution to the relationship between Medicine and Law has been the most significant since the publication of the first issue of CONNECTICUT MEDICINE, it would (in the opinion of distinguished students of jurisprudence and psychiatry) be the decision (1953) which recalls the times of Judge Charles Doe and Dr. Isaac Ray. In the words of the man who handed down the decision, Justice David Bazelon of the Court of Appeals of the District of Columbia (recipient of the Isaac Ray Award in 1961); "The rule we now hold . . . is not unlike that followed by the New Hampshire courts since 1870. It is simply that an accused is not criminally responsible if his unlawful act was the product of mental disease or defect."[5] This far-reaching decision inspired reappraisal of rules which since 1843 had etched themselves into the body of the law of England, of all of the United States and all of our Federal Courts except the Court of Appeals for the District of Columbia: The M'Naghten Rules. The essential core of this time honored formula is contained in the statement of Justice Maule, one of the judges who handed down the famed advisory opinion: "To render a person irresponsible for crime on account of unsoundness of mind, the unsoundness should, according to the law as it has long been understood and held, be such as rendered him incapable of knowing right from wrong." (1843)[6]

For Law, the M'Naghten Rules provided a simple test, the right-wrong test. If the perpetrator of a crime knew that what he was doing was wrong at the time the act was committed, he was guilty regardless of all other psychiatric considerations. The

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M'Naghten Rules had the apparent virtue of containing a simple question (neatly capsuled for charging juries) calling for a direct year or no answer. Yet, they harbored their own ambiguities. It is true that the Rules noted that right and wrong referred "to the very act charged' but failed to convey whether "wrong" meant legally wrong or morally wrong. In addition, there were epistemological difficulties. "It has been argued that 'knowing' denotes not only insight into the significance of the act but also ability to make use of such knowledge." (Weihofen)[7] Also, could not knowledge be construed to include meaningful awareness of experience with emotional components as requisite to judgment? In other words to really "know" whether an act were right or wrong, one might need the capacity to feel as an attribute of knowledge.

In seventeen of the states retaining the M'Naghten Rules, the right-wrong test is supplemented by the "irresistible impulse" criterion which gives recognition to other than cognitive factors. It would appear that the Rules could be expanded or contracted depending upon the sophistication, conscious intent and unconscious bias of the court. In Justice Cardozo's words the method of application of the M'Naghten Rules is ". . . neither good morals, nor good science, nor good law."[8] Justice Frankfurter did "not see why the rules of law should be arrested at the state of psychological knowledge at the time they were formulated."[9] And the Rules do indeed reflect the state of psychology long before it was a behavioral science, long before Pavlov and Watson. At that time, psychology conceived of the mental apparatus as departmentalized faculties localized in brain in accordance with phrenology, not cerebral anatomical physiology. The capacity to know was but one of many disparate faculties. There was no holistic conception of mind with interacting agencies, no notion of the primary role of the unconscious (the underworld of mind) in determining behavior. This was to be uncovered by Freud more than a half century later. Justice Biggs observed in 1961: "Since the turn of the century great strides in the advancement of psychiatry have been made. And since the beginning of World War II, the treatment and the cure of the mentally ill, the insane, has progressed at an astounding pace. But the criminal law has failed utterly to move forward with this achievement. . . . It is as if those who sit cannot read."[10]

The psychiatrist has condemned the M'Naghten Rules. As an expert witness in a court trial he is expected to answer "yes" or "no" to a question which has no relevance to mental illness, a question whose answer in effect determines innocence or guilt. An opinion thereby covertly pre-empts the function of the peers of the accused sitting in the jury box. In trial procedure, the psychiatrist is not permitted to perform those professional tasks which he carries out before and after the trial, namely, to present a clinical judgment founded upon a trained observer's understanding of psychic life. The ethical position of the psychiatric expert witness is described in Zilboorg's words, ". . . There is something immoral in this forcible conversion of the psychiatrist to formalistic concepts of legal insanity, . . . concepts which certainly have no clinical existence in psychiatry or in life itself, and which exist on paper only in our penal codes. . . ."[11]

On July 1, 1954, Judge David Bazelon of the United States Court of Appeals at the District of Columbia rendered the decision (mentioned above) in the appeal of Monte Durham, a decision which freed the psychiatrist from the tethers of anachronistic facultative psychology and the embarrassment of confrontation of colleagues in adversary roles aggravated by imposed restriction on the presentation of clinical data. The decision evoked severe criticism in the public press because it ordered a retrial in the case of Durham convicted of breaking into a home, despite the fact that the accused had a history of attempted suicide, of two determinations of unsound mind by juries, and four hospitalizations in St. Elizabeth's during which on one occasion he received subshock insulin. The decision, reminiscent of the "product" rule of Justice Doe and Dr. Ray is "that the accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect . . . We use 'disease' in the sense of a condition which is considered capable of either improving or deteriorating. We use 'defect' in the sense of a condition which is not considered capable of either improving or deteriorating . . ."[12]

Hailed by psychiatrists, the Durham decision was met with controlled optimism by jurists. Justice of the Supreme Court William Douglas noted, "The new regime of the Durham case does not offer perfection but there is certain to be betterment."[13]

Justice Biggs wrote, "We do not suggest that the Durham decision presents the best or the only feasible test for the determination of responsibility of the insane or mentally ill defendant. It does, however, assuredly represent a possible one . . ."[14] But the Durham decision appeared to give no clear guidance to the jury when compressed into the confines of a formula. As Justice Biggs pointed out, "the test must provide the jury with a verbal tool by which it can relate the defendant's mental disease to his total personality and by means of which it can render an ultimate social and moral judgment."[15]

Key words, "disease" and "defect," are incompletely defined and the word "product" not defined at all. Jurisprudence with its dedicated search for certitude finds no comfort in what Roche[16] calls . . . "the virtue of Durham" in that it avoids the definition of what constitutes disease or defect. "Since these are matters of scientific description which are relative and changing. . . ." The word, "product," implies a direct cause and effect relation between a mental illness and a specific criminal act carried out in a given brief period of time. This notion of causality is one of the cherished myths of Law. But mental illness is the result of multiple causes varying in intensity and quality operating characteristically during long periods of time The criminal act in itself may be a manifestation of a derangement of personality, but no more important than many other signs.

Return to the New Hampshire "Product" Rule is not without its problems in psychiatry. In Isaac Ray's day, a person was judged insane when his behavior required that he be institutionalized. In this seventh decade of the century of psychological man, large numbers of mentally ill identifiable by modern techniques, are not in mental hospitals and cannot be legally institutionalized on an involuntary basis. And yet, many of these individuals may act out against society. Further, dynamic psychiatry has disclosed the criminal in the unconscious of all men and has wondered "What constitutes a normal mind and whether such a thing can actually exist . . . questions of considerable theoretical and sometimes practical interest." (Ernest Jones)[17] In Freud's view ". . . Every normal person is only approximately normal; his ego resembles that of the psychotic in one point or another, in a greater or lesser degree . . ."[18]

It is of significant interest that the American Law Institute was the first to seek the help of the psychiatrist in the drafting of a penal code. In 1955, psychiatrists, judges, lawyers, and criminologists led by Professor Herbert Wechsler of Columbia University, evolved a tentative criminal code. The draft modified the language form of M'Naghten but embodied its cognitive substance. Justice Biggs believes the rule "would distract the jury from the criminal issues while being little more than surplusage."[19] Weihofen noted that "The Model Code is a recognition that definiteness in this field is a mere *ignis fatuus*."[20]

The Rule: "1. A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect, he lacked substantial capacity either to appreciate the criminality of his conduct or to conform his conduct to the requirements of law.

2. The terms mental disease or defect do not include an abnormality manifested only by repeated criminal or otherwise antisocial conduct."[21] One may note a semantic improvement over M'Naghten. "Know" and "wrong" have been eliminated. "Lack of capacity" replaces the "irresistible impulse" added to M'Naghten in seventeen states. The second statement in the Rule deliberately excludes a large group of mentally ill, the actor-outers, the sociopaths.

Justice Biggs in his important decision in the case of the United States versus Currens (1961) specifically includes the sociopath. He pointed out that "A court of law is not an appropriate forum for a debate as to the meaning of abstract psychiatric qualifications . . . We think that the court, in permitting an insanity defense to be employed in the case of the sociopath, is pursuing the correct course, for the mental condition of the accused is one of ultimate fact to be found by the jury which must always determine the defendant's *mens rea* or lack of it."[22] Justice Biggs presents his formula which eliminates the cognitive "to appreciate the criminality of his conduct" contained in the penal code and retains the lack of "substantial capacity to conform his conduct to the requirements of the law" as the best rule to present to the jury.[23]

Thus, the perceptive jurist continues to make valiant efforts to describe human behavior in terms of a formula. But there is no mathematics for describing the dynamics of growth and development of a healthy mind, no easy formula for defining aberrant behavior arising from a deranged mind.

There are those who believe that "Durham points to the time when the defense of insanity will no longer be left to caprice and perhaps when the defense of insanity will no longer be necessary . . ." (Roche)[24] The need for the psychiatrist to deal with questions which are too simple or irrevelant to answer or too general or significant to make meaningful to a jury is eliminated. Jurisprudence may continue to use his professional insights before and after the trial to determine diagnosis and therapy. Disposition for legal and medical reasons would thereby be jointly served. But, more than fifty years ago and again in 1928, the Supreme Court held legislation eliminating the defense of insanity to be unconstitutional. Then, on what level of abstraction can the lawyer and the psychiatrist agree? The Group for the Advancement of Psychiatry[25] answers this way, "The psychiatrist can determine that ego impairment exists and the lawyer can transpose the fact into his terms of intent and responsibility. Beyond this, neither can move, since in this area of observation, no meaningful dimensions and scale have been worked out; thus, the question of *how much* is left unanswered. In workaday practice, we perforce cling to the expedient of "common sense" in estimating diminished responsibility in all cases.

If we think of common sense as a quality derived from perceptions of and judgments concerning reality which are highly adaptive for the individual and the group, then it is an "expedient" which should always be available. A common sense decision of the judge depends on his capacity (in the light of available knowledge) to assess how and to what extent departure from precedent is indicated. Dedicated in his search for certitude, he is also fully aware of the uncertainties of precedents. The common sense of the enlightened Judge modifies precedents and so, common law has capacity for change and growth vital for social adaptation. The creative legal mind of today has become increasingly sensitive to the dynamics of society. In this era of science, it will necessarily respond to the data of science as it has to the political and social facts of life. His training has of late made it possible for him to communicate more freely with the medical scientist, particularly the psychiatrist and the converse is also true for the physician. Integrated courses of instruction, many at the gradual level, have become more available in Schools of Law and Medicine. The Psychiatric Institute of London, requires that its trainees secure legal training. Better communication is only a preliminary necessity.

The psychiatrist notes with candor that "it has not yet devised a formula for measuring differences of responsibility for given acts" and that he can "do somewhat better than the man on the street, but not much."[26] The psychiatrist may say with equal candor that while he has made strides in understanding and treating mental illness, he has, for example, only a descriptive knowledge and some dynamic understanding of the sociopath or psychopath as he is sometimes called. He must also say that there is no definite treatment for so many varieties of mental disturbances contained in this group. It is fair to say in this connection that Monte Durham, under psychiatric care, would in all probability show no significant improvement. Indeed his record reveals that to a certain extent, he enjoyed such care. The truth is, that if it were constitutional to avoid the plea of insanity as defense and thousands of Monte Durhams were permitted the opportunity of indefinite long term hospitalization, the psychiatrist would have neither the resources to care for them nor the therapy to treat them. Prisons without walls and with advanced forms of training and mental hospitals with detention facilities would become strikingly similar.

It would seem that the limiting factor in adapting Law to the needs of society in the area of responsibility for criminal acts stems more from the lack of behavioral data than from rigidities of Law. As data accumulate they will find themselves integrated in the common sense decisions of enlightened jurists as in the case of Monte Durham. It is for the scientist of behavior in collaboration with the researcher in other disciplines concerned with interpersonal relationships to press forward with increased vigor his study of man.

BIBLIOGRAPHY

1. Cardozo, Benjamin N., Law and Literature and other Essays and Addresses, Harcourt, Brace and Co., New York, N. Y., 92.

2. Zilboorg, Gregory, M.D., The Psychology of the Criminal Act and Punishment, Harcourt, Brace and Co., New York, N. Y. (X).

3. Reik, Louis, E. The Doe-Ray Correspondence, A Pioneer Collaboration in the Jurisprudence of Mental Disease, 63 Yale L. J., 183 (1953).

4. Reik, Louis E., ibid; 183.

5. Durham v. United States, 214 F. 2d 862 (1954). ,

6. Justice Maule, 10 Clark and Fin. 205, quoted by Weihofen, Henry; Insanity as a Defense in Criminal Law. The Commonwealth Fund, London, 1933.

7. Weihofen, Henry, The Urge To Punish, Farrer, Strauss and Cudahy, New York, 37.

8. Cardozo, Benjamin N., op. cit., 108.

9. Frankfurter, Felix., Royal Commission On Capital Punishment, September 1953, p. 102, para. 290, H. M. Stationery Office.

10. Biggs, John Jr., United States v. Currens, 290 F. 2d 751 (1961), 770.

11. Zilboorg, Gregory, The Reciprocal Responsibilities of Law and Psychiatry, Shingle XLL, 79-96, April 1949, Philadelphia.

12. Monte Durham v. United States of America, 214 F 2nd., 862 (1954).

13. Douglas, William O., Law and Psychiatry, William Alanson White, Inst. of Psychiatry Psychoanalysis and Psychology, N. Y. 1956.

14. Biggs, John Jr., op. cit., 772.

15. Biggs, John Jr., op.cit., 773.

16. Roche, Philip Q., The Criminal Mind, A Study of Communication Between Criminal Law and Psychiatry, Farrer, Strauss and Cudahy, 253.

17. Jones, Ernest, Papers on Psycho. Analysis, The Williams and Wilkin Co., Baltimore, 208-209, 1948.

18. Freud, Sigmund, Collected Papers, Vol. V, 337, The Hogarth Press and the Institute of Psychoanalysis, 1950.

19. Biggs, John Jr., op. cit., 774.

20. Weihofen, Henry, op. cit., 64.

21. American Law Institute, Model Penal Code, Tentative Draft, No. 4, see 401 (1955).

22. Biggs, John Jr., op. cit., 763.

23. Biggs, John Jr., op. cit.

24. Roche, Philip Q., Op. Cit., 272.

25. Criminal Responsibility and Phychiatric Expert Testimony formulated by The Committee on Psychiatry and Law of the Group of the Advancement of Psychiatry, Topeka, Kansas, May (1954), p. 6.

26. Ibid, 6.

The Medical Witness And His Day In Court

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SEVERAL books have been written on the subject of a doctor as a courtroom witness. Obviously in the space allotted it would be physically impossible to cover all the subjects that are included in such published books on the doctor's courtroom manners. However, I shall attempt to cover several of the more important subject matters.

Every physician has been impressed with the necessity of good "bedside manners." In the adversary proceedings of the courtroom it is necessary to have good courtroom manners.

Most doctors have an aversion to the very thought of appearing in court and testifying in a lawsuit. C. Joseph Stetler, Director of the Law Department of the American Medical Association has said in a speech reported in "12 New York Medical Bulletin 801":

"In my work with the medical profession I have come to the realization that practically all doctors have an aversion to appearing in court and testifying in a law suit. Although a few have had unpleasant experiences as witnesses, most have been frightened by the exaggerated reports by a colleague of 'murderous cross-examination' by an opposing counsel. . . ."

Generally speaking, this concept of "murderous cross-examination" is without foundation in fact. No skillful trial attorney today in cross-examining a medical witness would thump the table, shout, or seek to belittle the witness. A sneering, sarcastic cross-examination always results in the jury's resentment toward such an examiner. The medical witness generally is the beloved of the jury. The jury is usually on the side of the surgeon or the physician and dislikes a smart-alecky, insulting, belittling cross-examiner. Many of our foreign born show their extreme respect for the doctors by tipping their hats. The same respect that laymen show doctors in everyday life is generally exhibited by the same individuals when they are called upon to perform jury duty. It is only in the Hollywood portrayal of courtrooms such as we saw in "Anatomy of a Murder," "The Paradine Case," "Inherit the Wind" and the like, or in the television portrayal of the courtrooms on the "Perry Mason" series and others of like nature, that sarcastic, disrespectful cross-examinations take place. The experienced trial lawyer "treads softly" in cross-examining a medical witness.

Recently the AMA polled attorneys in a survey for suggested ways of improving the medical testimony or bettering relations with the medical profession. The three most frequently voiced proposals were:

(1) To hold joint interprofessional meetings to discuss mutual problems;

(2) Increase co-operation between physicians and lawyers at pre-trial conferences;

(3) To educate the physician to realize that testifying in court is part of his duty to the patient.

I believe that all of the three above-named proposals are directly the keys to harmony between the

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Condensed from a talk on this subject delivered on May 30, 1961 at the Cavalier Hotel, Virginia Beach, Virginia, to the joint meeting of the Atlantic Coast Line Surgeons Association and the Association of Seaboard Airline Railway Surgeons.

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professions. But most important are meetings in which practical men air their differences openly and objectively. Of the greatest importance is the fact that the physician need not be, and should not be, a victim of *Globus Hystericus*[1] or a frightened medical witness.

The National Interprofessional Code for Physicians and Attorneys, adopted in 1958 jointly by the American Bar Association and the American Medical Association, provides as follows:

"The attorney and the physician should treat one another with dignity and respect in the courtroom. The physician should testify solely as to the medical facts in the case and should frankly state his medical opinion. He should never be an advocate and should realize that his testimony is intended to enlighten, rather than to impress or prejudice the court or the jury."

A recent code enacted jointly by the Chicago Bar Association and the Chicago Medical Society provides, among other things, as follows:

"The relationship between lawyer and a physician should be based upon mutual courtesy and understanding; they should conduct themselves towards one another in the courtroom with dignity and respect.

"The physician should testify solely as to the medical facts in the case and should frankly state his medical opinion. The role of the physician witness is to interpret medical facts in lay terms to the judge and jury without regard to what legal conclusions may be drawn from such testimony. He should never be an advocate and should realize that his testimony is intended to enlighten rather than to impress or prejudice the court or jury.

"Established rules of evidence afford ample opportunity to test the qualications, competence, or credibility of a medical witness; it is always improper and unnecessary to embarrass or harass a medical witness without just cause."

In an article appearing in "39 New York State Journal of Medicine" entitled "Doctors, Lawyers and Injured Brains" by Dr. Irving J. Sands of Brooklyn, New York, it was said:

"There should be mutual respect of physicians and lawyers for the responsibilities and attitudes of each other. This would prove a positive contributing factor to judicial verdicts. . . .

"Appreciation and respect of each others' attitudes and responsibilities would contribute to a better relationship between doctors and lawyers."

But merely bearing in mind what the various interprofessional codes have stated about the mutual responsibilities and obligations of the attorney and the doctor is not sufficient. The client-patient relationship of the physician and the lawyer in the judicial process is far more intricate. What then are some of these intricacies?

Terminology

The writer has long been of the firm opinion that lawyers must take the time to discuss in person with the medical experts this vexing problem of the legal or lawyers' definition of "causation," "aggravation" and "precipitation" as distinguished from the medical definition. Too many doctors think in terms of differential diagnosis when they are asked a hypothetical question as to whether or not a given state of facts was, in the doctor's opinion, within the degree of reasonable medical certainty, a competent producing cause of the medical ills found on the examination. When this problem has been clarified by personal discussions with the doctor, then the resulting medical testimony is far better received in the courtroom.

It is distressing to note that a great number of the doctors testifying in trauma cases are totally unprepared for the thinking of the legal profession on the subjects of causation, aggravation, and precipitation. We find that the doctors, because of their training, are thinking in terms of the exact, precise, and one and only cause of a particular condition, while the lawyers, because of their training, are thinking not of an exact knowledge, but the reaching of an inference of reasonable medical certainty from a sequence of facts from which that particular inference can be derived. This is particularly apparent in cases involving the so-called "medical mysteries" or obscure diseases such as multiple sclerosis, arthritis, the muscular dystrophies, diabetes, carcinoma, leukemia, hepatitis, tuberculosis, and heart disease. The doctors seem to feel that until they know what definitely causes these diseases, they are not prepared to say that trauma might or could have caused them or aggravated them.

The doctor's phrase "cause," the lawyer's phrase "cause" and the workmen's compensation phrase "cause" are not always the same thing.

But if the doctor is horrified at the lawyer's "cause" in those cases where he admits precipitation, what must his feelings be when the lawyer brashly defines "cause" in a medical area where even the medical profession fears to tread and is in a state of collective disagreement over precipitating circumstances? Take cancer causation as an example. The differences between doctor and lawyer on cause for cancer should, by this time, be obvious. The doctor, while he does not know the one single, certain cause for cancer, does seem to know what the one single, certain cause for cancer *is not*—it *is not* trauma, as the word is commonly used. In the face of this more or less chronic assertion, the lawyer has gone about proclaiming busily that he knows the cause and it *is* trauma. He cites judicial decisions in tort and workmen's compensation cases by the dozen to prove his point—that trauma has been proven legally as the cause of cancer, aggravations, accelerations, activations, metastases, and yes, even the formation of brand new cancer out of previously normal tissue.

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[1] A choking sensation, as of a lump in the throat, to which hysterical persons are subject. See also splendid article by David I. Sindell of Cleveland, Ohio entitled "The Frightened Medical Witness; or 'Globus Hystericus' Must Go," "Cleveland-Marshall Law Review," pp. 75-86, Volume 6, No. 1, January 1957.

However, while some "lawyer-cause" cases may be deserving of attack, the doctor would do well to look deeper into the remainder. He would find that most of the cases, both in tort and in workmen's compensation, have been decided on an entirely honest application of lawyer formulae which relate to the placing of legal responsibility. To be sure, the lawyer's formulae contribute little toward finding the source or etiology of a disease, but the doctor must realize that they are not designed for that. The formulae, both proximate cause in tort and occasionment in workmen's compensation, are liability standards—they are used to allocate legal responsibility equitably on the basis of a reasonable probability, not a certainty of casual relationship. The doctor must realize that a determination of legal responsibility is not the same as finding a pathological cause or source for disease. The doctor must make room for both approaches and credit the same respectability to the standards of the lawyer in the pursuit of his function as he assigns to the standards which he uses in his own office. Then the doctor will understand how his secondary causal factors can become lawyers' liability pegs. When he understands the differences between pathological sources and cost pegs, he may be more inclined to drop his *post hoc* charge, realizing that cause is a word of many uses, many meanings."[2]

In *Pittmann v. Pillsbury Flour Mills, Inc.*, 234 Minn. 517, 48 N.W. (2nd) 735, a cancer case, the court said:

"Although the absence of exact medical knowledge on the cause of cancer makes it impossible to say with absolute certainty whether a particular injury caused or aggravated a particular cancer, we are hardly compelled to say that a finding of cause and effect in a given case is without support in the evidence because such tenuous uncertainty exists. A great many findings made by juries, courts, and other triers of fact rest upon something less than absolute certainty."

Many laboratories have performed experimental studies on the traumatizing of animals and such studies are conceded to be inconclusive as to whether or not trauma can "cause" certain of the medical mystery diseases. As a result, the medical profession at the present time concedes that the *exact* cause of multiple sclerosis, the muscular dystrophies, hepatitis, arthritis, diabetes, epilepsy, carcinoma, leukemia, tuberculosis and heart disease is unknown.

In an article entitled "A Primer for Medical Evidence" written by Theodore I. Koskoff, Esq., in the December, 1955 issue of "Medical Trial Technique Quarterly," the following expressive language is used:

"If one searched for a single medico-legal problem that gave the most difficulty to doctors and lawyers alike, the doctrine of reasonable probability is that problem. The requirement of legal proof that a particular injury was caused, aggravated, precipitated or 'lit up' by a particular trauma is met when it appears that it is reasonably probable that it is so. It is not necessary that it positively, scientifically in every case is so. It is only necessary that it be reasonably probable in the particular case. One treatment of this extensively debated subject expressed it this way:

" 'The methods used in medicine and in law to arrive at the truth are very different. In law it is only necessary that the doctor give an opinion on the probability, not the certainty (of a medical fact). When the subject of reasonable probability is approached in court, the doctor begins to hedge. He will not state in the courtroom things about which he may have little doubt privately. He is too inclined to think of himself as a pure scientist and to think of legal proof in the same terms as he does of scientific proof. Unless a statement can be proven conclusively, he rarely admits in the court that in his opinion it is so.

" 'Whereas all of these factors are medical in nature doctors frequently confuse their importance, insofar as reasonable probability of causation is concerned. For example, as bad as the physical or psychic conditions of a person is before sustaining an injury, the fact that the trauma superimposed on this condition causes an injury or disease which in an otherwise normal person would not be caused, doesn't make the trauma any less a causative factor of the injury or disease. For the oft-repeated statement that a person is not entitled to a perfect specimen upon which to inflict injury is legally true'."

Medicine is very far from being an exact science. Often its diagnosis can be little more than a guess enlightened by experience. The chances of recovery in a given case are more or less affected by unknown causes and unexpected contingencies; and the wisest physician can do no more than form an opinion based upon a reasonable probability. It is argued that the witness must have an opinion as to the permanence of the injury, and then may express that; but necessarily the opinion must rest upon a balance of probabilities, including the medical judgment one way or the other, and the opinion given is none the worse because it expresses, and does not conceal, that it rests upon a reasonable probability strong enough to justify the formation of an opinion.[3]

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[2] Ben Small, Professor at Indiana University Law School, in 31 "Texas Law Review" 630, an article entitled "Gaffing at a Thing Called Cause: Medico-Legal Conflicts in the Concept of Causation."

The Hypothetical Question

Physicians who testify as expert medical witnesses need to be indoctrinated in the rules governing hypothetical questions. If they do not understand these rules, they may err in basing an opinion on facts not incorporated in the hypothetical question. The hypothetical question is, unfortunately, misunderstood generally by Judges, lawyers and medical witnesses. There is a great misconception as to when or how you must use a hypothetical question. Where the *doctor is a treating physician,* the hypothetical question is not needed to establish the traumatic nature of the injury, if the doctor received from the patient a history for purposes of treatment. Nor is it needed to show permanency or competent producing causes of pain, discomfort or disability.

If the doctor is not a treating physician, then a hypothetical question should properly be used. It is proper and important for doctors to insist upon discussing the proposed hypothetical question with the trial lawyer in advance, so that both understand the ground rules. For instance, in New York, as in many other states the hypothetical questions asks the doctor to assume as true the facts to be recited in the question. Usually it calls for a statement from the doctor as to whether or not he has an opinion. This question, of course, must be answered by a "yes" or "no." He either has an opinion or he does not have an opinion. The next question in the series would then be, what is the doctor's opinion based upon reasonable medical certainty. Usually the third and concluding question in the series is why is that his opinion.

A hypothetical question should be cut in segments and not be long and cut and dried. It is an important weapon properly used, and when the doctor is fully alerted to the situation and what is required of him, it becomes an effective media of communication.

Medical Manners In The Giving Of Testimony

One of the finest articles on this subject is entitled "Doctors and Lawyers in Court," which appeared in the "Connecticut State Medical Journal," October, 1952 and in my book "Handling Accident Cases" at 2:410-2:413. In it Dr. Louis H. Cohen said:

"The doctor needs to remember that the lawyer is a fish out of water when he is involved in a medical situation just as the doctor is when faced by the intricacies of legal 'fact,' admissable testimony, and the bewilderments of legal language generally. Giving good testimony is an art which very few doctors have mastered. They are inclined to forget when they come to court that they are not addressing the medical society. As one lawyer expressed it, 'Sometimes people would like to know what the doctor is talking about. Matters would be helped if he would speak English.' There was a widespread complaint on the part of the lawyers about the tendency to rely on medical terminology to carry the weight of medical evidence. Many lawyers are of the opinion that the doctor, feeling lost in the courtroom, attempts to regain his sense of security by using words which no one understands. Other lawyers felt doctors use technical language deliberately to show their erudition. The most experienced and consequently the most tolerant lawyers, seeing the bewilderment which the forensically inexperienced doctor faces, simply suggested that with more preparation and more experience the doctor would learn to communicate with laymen. . . .

"Many lawyers believe that most doctors are afraid of disagreeing with their colleagues over medical issues or of being shaken on cross-examination with resultant public embarrassment. One lawyer suggested that ' doctors lead too sheltered a life.' In their private offices they remain above reproach. In the courtroom, subject to criticism and controversy over their opinions, they are acutely unhappy and reluctant to make positive statements. When a lawyer asks a doctor whether exposure to iron dust can be reasonably supposed to cause silicosis and the doctor refused to admit it because he is not absolutely sure, he shows how completely he fails to understand the legal approach.

"One of the frustrating experiences reported by doctors was to have to wait to be asked the right, i.e., the important or relevant, medical questions. The lawyer often did not know what questions to ask. This was especially true in cases where the hypothetical question came into the picture. Often it is too poorly formulated to be of any value because it is framed by the lawyer who simply doesn't know the data which are relevant to include, becomes flustered by the objections which are inevitably made, attempts to reformulate the question, often with even less success than the original one, all this while the doctor sits silently in the witness box waiting for the jousting to stop and while the jury becomes bored or amused or exasperated. One doctor suggested that if the hypothetical question is to be used, it might be better for it to be formulated by the doctor himself and given to the attorney to get into evidence beforehand and then to ask, an idea which is certainly unorthodox and conceivably is unethical."

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[3] New York Court of Appeals in *Griswold v. New York Central and Hudson River Railroad Co.,* 115 N.Y. 61 (1889).

Use By The Doctor Of Demonstrative Evidence[4]

"Showmanship in the trial of a case is important, but it can be overdone. The words 'demonstrative evidence' have sprung up in all quarters in the last few years. It is true that the trial of a case has some of the aspects of a drama, but like drama, it must be of a nature to appeal to the average juror and not a 'show-off' or grandstand performance. Proper demonstrative evidence, such as pictures, plates and surveys, are always helpful in supplementing oral testimony of witnesses. Jurors are, of course, ordinary human beings. The ear can catch only so much. The eye is much more accurate."[5]

"The insurance companies . . . must re-orient our thinking to conform to changed conditions. The technique of demonstrative evidence is largely responsible. Today, the tools of the damage-suit lawyer include blackboard, colored chalk, artificial limbs, neurological skeletons, colored plastic torsos, and every other part of the human body. The effect on the juries is already history. The effect on insurance and insurance companies is devastating. . . . We must be ready to meet demonstrative tactics with demonstrative defense, meet blackboard with blackboard, meet pamphlet with pamphlet."[6]

It is strongly recommended that the doctor's use anatomical drawings, charts, medical illustrations, transparencies, skeletons and anatomical models, medical photography, and where appropriate, surgical hardware, plates, and X-rays. It is important for the jury to understand fully what the doctor is attempting to describe by his words. Most physicians have had occasion to lecture before medical students and nursing classes about anatomy or surgical procedures. In such instances certainly a blackboard, or medical charts, or slides, or illustrations were used in this way, and the physician was able to convey his message to the audience.

At medical society meetings, invariably slides, charts and drawings are standard equipment. Where permitted by court custom, the utilization of such means to carry the doctor's message adequately to the jury is recommended.

Jurors have an extreme interest in their bodies, and subjects of health awaken and hold their interest, as proven by the fact that most newspapers carry syndicated articles on medical subjects, and most popular magazines do likewise. If one can project the injuries properly to a jury, one will have gained an alert audience.

Conclusion

Dr. Daniel Collier Elkin, Professor of Surgery at Emory University School of Medicine, recently said:[7]

". . . Medicolegal clinics and seminars have become a vital part of the post-graduate education of the lawyer as well as of the physician. . . . A more intelligent use of medical libraries and research materials by the lawyer and a better understanding by the physician as to the part he is to play in the courtroom result from our joint enterprises of working and studying together.

"Much in the way of opportunity lies ahead for us of the medical and legal professions. Through the continuation of the spirit of good will and co-operation . . . much can be accomplished leading toward a better life.

A quotation from the interprofessional code of North Carolina, enacted by the Bar Association and Medical Societies of North Carolina, offers an apt closing comment. The code properly says:

"It is recognized that both legal and medical professions are essential to society; and their aims are essentially parallel. This necessitates at all times full understanding and co-operation. Each has the duty to develop an enlightened and tolerant understanding of the other in the best interests of the public, as well as the reputations of the two professions."

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[4] See my views in an article entitled "Medical Photography as an Aid to Trial Lawyers," June, 1956 issue of "The Bulletin" (General Claims Division Association of American Railroads and "The Chronicle" (National Association of Railroad Trial Counsel), and also my article entitled "Finding an Expert for Your Case" appearing in the April 1958 "Bulletin" and "Chronicle" of the aforesaid associations.

[5] J. A. Gooch of Fort Worth, Texas in an article, entitled "Personal Injury Litigation: Settlement from the Defense Point of View," 14 "Washington & Lee Law Review" 29, 36-37 (1957).

[6] Given by Rupert G. Morris at the 1953 Convention of the International Association of Insurance Counsel as reported in the Harvard Law School "Reports on Personal Injury Practice," 20 "Insurance Counsel Journal" 1415 (Jan. 1953).

[7] 3 J. Pub. L. 289 (A Symposium on Law and Medicine.)

The Other Side Of Disability Evaluation

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THE industrial revolution brought in its wake its inevitable victims—the injured workers. As industry grew, new products were developed and new means of manufacture were devised.

"In the meantime, the number of accidents continued to rise. The increase in operating speed added to the severity of the injuries, as well as the frequency rate, and the situation became sufficiently alarming to draw the attention of public legislators to the social consequences of further neglecting this problem."[1] Switzerland introduced the first national workmen's compensation laws in 1881. It wasn't until 27 years later that Congress passed a workmen's compensation law applicable to certain Federal employees.

Around the same time, many states tried to introduce such laws, but they were all declared unconstitutional. In 1911, Wisconsin succeeded in enacting the first permanent Workmen's Compensation Law. Since then, all states have such laws.

But the industrial revolution did something else that ultimately was responsible for victims of injuries in staggering quantities—it mass-produced the automobile. As the standard of living in America rose, so did its capacity to purchase automobiles—and so did the accident rate.

Today, with some 60 or 65 million cars on the nation's highways, with a predictable average of one out of every 18 people injured each year, the problems of the maimed and the injured increase in arithmetical progression.

Despite the fine work done by medical, social, labor and government agencies to eliminate industrial hazards and poisons and the increase of safeguards in industry, and despite the tremendous effort of safety campaigns, the solution of the problems created by injured workers and the mayhem inflicted on our highways continuously remain elusive. One of these elusive problems has been the necessity of evaluating disability as part of our medico-social-legal philosophy in the process of restoring, as well as it can be done, the economic and social stability and usefulness of the injured person. This latter phase of the rehabilitation process cannot be accomplished without a reasonable understanding of the extent of the patient-client's disability. This has proven to be a knotty, complicated medical-social-legal problem. Many factors not capable of accurate measurement or diagnosis enter into the problem of evaluating disability. There is frequently a wide difference of medical opinion on the subject. The medical profession felt that some "scientific" way of evaluating disability should be established. And so, physicians looked about for a formula.

On February 15, 1958, the Journal of the American Medical Association came out with a Special Edition entitled, "A Guide to the Evaluation of Permanent Impairment of the Extremities and Back."[2] This work was produced by the Committee on Medical Rating of Physical Impairment.

An important service performed by the "Guide" is the distinction drawn between *permanent impairment* and *permanent disability*. The preface to the "Guide" states this:

"1. *Permanent Disability*: This is *not* a purely medical condition. A patient is 'permanently disabled' or 'under a permanent disability' when his actual *or* presumed ability to engage in gainful

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[1] Accidental Injuries, Kessler, Page 20, Lea & Febiger, 1941.

[2] American Medical Association Journal, Special Edition, February 15, 1958.

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activity is reduced or absent because of 'impairment' and no fundamental or marked change in the future can be expected."

"2. *Permanent Impairment*: This *is* a purely medical condition. Permanent impairment is any anatomic or functional abnormality or loss after maximul *medical* rehabilitation has been achieved and which abnormality or loss the physician considers stable or non-progressive at the time evaluation is made. It is always a basic consideration in evaluation of permanent disability. It should be remembered, however, that *permanent impairment* is a contributing factor to, but not necessarily an indication of, the extent of a patient's permanent disability."[3]

As simple as the aforesaid distinction between "disability" and "impairment" is, the two are nevertheless used unscientifically by both the doctor and the lawyer. Most physicians in their reports to lawyers write of "percentage disability" and speak in courts of "percentage disability" when, in fact, as it has been pointed out many times, what they should be speaking of is "impairment." On the other hand, lawyers must be made to understand that "impairment" is only a single phase of "disability" and to properly present disability to a court or compensation commissioner, they must recognize the necessity of having other qualified people evaluate the other factors which go to make up "disability." "Evaluation of permanent disability is an appraisal of the patient's present and probable future ability to engage in gainful activity as it is affected by non-medical factors such as age, sex, education, economic and social environment and the medical factor of permanent impairment. Non-medical factors have proved extremely difficult to measure. For this reason 'permanent impairment' is in fact the sole or real criterion of 'permanent disability' far more often than is readily acknowledged."[4]

This approach, of course, is unfortunate for from a disability point of view, it places the amputee on about the same level, whether man or women, left or right-handed, 25 or 65, college graduate with I.Q. of 130 or 4th grade graduate with I.Q. of 75, famous violinist or lawyer.

In addition, defined as "the patient's present and probable future ability to engage in gainful activity," disability evaluation here would involve only one type of disability—occupational. Certainly social disability or physiological disability are strictly psychiatric, psychological or medical in origin and surely can best be described by the appropriate member of the medical profession. On these levels of social action and physiological action, *impairment* and disability are practically the same.

The work argues that *Evaluation of Permanent Impairment* is a function which physicians alone are competent to perform as the "Guide" states:

"Evaluation of *permanent impairment* defines the scope of medical responsibility and, therefore, represents the physicians' role in the evaluation of *permanent disability*. Evaluation of *permanent impairment* is an appraisal of the nature and extent of the patient's illness or injury as it affects his personal efficiency in the activities of daily living."[5] How it is reasonably probable to do this without taking into consideration age, sex or the other factors mentioned, escapes the writer. The reason for wanting to establish an evaluation of "permanent impairment" solely on the basis of an accurate "objective measurement of function and avoidance of subjective impressions and—factors as the patient's age, sex or employability also escapes the writer. The fallacy of this approach, of course, lies in its two-fold attempt to make something scientific and empirical out of *disability* or *impairment* evaluation both of which are not capable of true scientific evaluation. As we shall see later, the obsessive self-defeating thirst for objectivity in the medical-legal field are minimized while the relatively meagre tools of X-ray, electroencephalogram, etc. are over-emphasized.

The aim for scientific certainty rather than reasonable probability has resulted in a compulsive search for objectivity that, from a legal point of view, is unnecessary and from a medical point of view, is fruitless and frustrating.

In a thoughtful analysis of this question, one writer wrote this:

"The relative ease of presenting visible evidence has led to a compulsive search for this kind of information, to the neglect of injuries in the psychological sphere. The clarification of such injuries requires an understanding of the disturbances which may not be seen, but which are nonetheless disabling. . . ."[6]

"To start with, even in the world of the objective, there is no certitude for the 'observer and his instruments become an integral part of the phenomena under investigation. Even in principle, there is no such thing as an absolutely unavoidable interaction between the observer and the phenomena."[7]

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[3] Supra, preface.

[4] Supra.

[5] Supra.

[6] "Trauma and the Search for Objectivity"—Dr. Yale Koskoff, Address NACCA—January 31, 1958, Pittsburgh, Pennsylvania.

[7] "The Principle of Uncertainty"—George Gamow—Scientific American—January, 1958—Page 54.

"The most objective scientist of all, the physicist has introduced the principle of uncertainty. In this private world, one can well ask, 'What is correct?' "[8]

P. W. Bridgmen, in his reflections of a physicist says, "What is correct, except for the consensus of qualified observers."[9] In the private world of man,

"Just as the physicist has learned to cope with the nature of the trauma itself in reaching an understanding of the private world of the atom, contemporary medical scientists and practitioners have broadened the concept of what constitutes trauma in the private world of their patients. Twenty-five years ago, most physicians were concerned only with causes of illness which could be overtly demonstrated. The patient could be struck down by a blow to his head, by an overdose of poison or by the invasion of micro-organisms. The causes were known: they could be seen on the surfaces and through lenses of the microscope. Effects were revealed by the blood count, the temperature chart and the X-ray."

"This narrow view of etiology proved insufficient in the understanding of certain patients. We came to appreciate the fact that private thoughts and feelings of the patient could produce gastric ulcers, cardiac arythmias, backache, headache, and even convulsions. Psychic trauma, as a cause of disease, was established. More than fifty years ago, Freud defined psychic trauma as:

"Any impression the nervous system has difficulty dealing with by means of associated thinking or motor action."[10]

"We have come to learn that external blows are accompanied by psychic blows. We have come to learn that in some instances the psychological strength of the person, the ego strength, will help in the rehabilitation of structural damage. Also, we have learned that the psychological vulnerability of the person can, through no conscious fault of his own, augment the organic disability."

"Clinicians use a method of science in establishing or rejecting a diagnosis. The doctor makes an educated guess from a careful history concerning what is wrong with his patient. The pertinence of his hypothesis will, of course, in great part depend on his own interpretive, private skills. This hypothesis is tested by examination, accepted or rejected. If the doctor's hypothesis includes a consideration of the subjective elements of feeling, head pain, dizziness and the like, his methods of estimating the subjective complaints must be appropriate to the hypothesis. He can never demonstrate a headache with an X-ray. Nor will he ever be able to reveal memory loss with an electroencephalogram. The compulsive search for "objective data" may not only be fruitless, but damaging to the patient. Introduction of a needle for a myelogram or pneumoencephalogram in certain people "no matter how delicately introduced" may produce traumatic disturbances, recalling events described in the "realm of small things" in the physical world."[11]

For the sake of the claimant, both as patient and client, acquisition of facility in clarifying private data are essential. One must not rely solely on what is overt. As doctor and attorney involved in the crisis of court proceedings, dealing with hurt human beings, one must know how to understand what is essentially human. If, in a professional capacity, one were involved with abstractions, he might allow himself the luxury of the apparent certitude of overtly demonstrable data. It is normal and natural for everyone to wish to be sure. Psychologists say this is a throwback to childhood when father knew all and father was always right. This type of effort (the "guide") coincides with this basic need.

If one will use the concepts of psychological medicine with its own internal consistency and not attempt to force private data directly into a visible mold, a significant forward step in the illumination of the evidence of injury will have been made. It is within the framework of this approach that disability evaluation and impairment evaluation both should be conducted.

Now just what is it that this American Medical Association "scientific" guide to evaluation of permanent impairment does?

A careful examination of the "guide" discloses that what the tables do is to set up percentages of impairment based on three things: (a) loss of motion; (b) ankylosis or (c) amputation at a joint.

For example, under "Amputations," the following appears:

Disarticulation at shoulder joint — then under upper extremity 100 per cent (so far so good); then, in translating this into the column under "whole man" 60 per cent disability is given. This percentage arrived at is, of course, arbitrary. But, even assuming that these percentages of "whole man" disability as appears in this column are correct as orthopedic percentages, they certainly do not reflect those factors which go to make up even "whole man" impairment. For example, the table does not reflect the psychic trauma to the individual, his capacity to compensate for his injury, his ability to function socially, etc.

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[8] Ibid.

[9] "Reflections of a Physicist"—Philosophical Library— P. W. Bridgmen—New York 1955—Page 215.

this is equally true.

[10] Supra—Note 6.

[11] Ibid.

Or on another example, the table points out that if the interphalangeal joint of the thumb is only able to flex 40°, it has lost 40°, but the thumb is impaired 23 per cent; or if the same joint is ankylosed at 40°, the thumb is 35 per cent impaired. Even giving full credence to the impairment percentages as accurate indications of the joint involved, is this the basis of impairment? What about co-ordination, impairment of special senses like touch, in some cases muscle strength, what about the generalized effects of the patient's injury and the psychiatric effects?

Used as a small tool in the covey of the clinician, such a guide could be of value. Used as it is being used in the courtrooms of our nation as the Bible of "disability impairment" or "disability evaluation" as it is mistakenly done, the Guide performs a disservice to the public.

If we could only heed the words of Lin Yutang, the famous Chinese philosopher, in writing of "a pseudo-scientific formula" in his book, "The Importance of Living":

". . . I distrust all dead and mechanical formulas for expressing anything connected with human affairs or human personalities. Putting human affairs in exact formulas shows in itself a lack of the sense of humor (reality as he uses it) and therefore, a lack of wisdom. But if we recognize that these formulas are no more than handy, graphic ways of expressing certain opinions and so long as we don't drag in the sacred name of science to help advertise our goods, no harm is done."[12]

Throughout the literature, the fallacies of this and other attempted "empirical" or "scientific" tables of impairment or disability are perpetuated.

McBride, in his book on "Disability Evaluation," in discussing *The Rice Method of Calculating Industrial Disabilities of the Extremities* said this: "If one of the joint (units) of a member possess 100 per cent of normal motion, and loses 40 per cent of this motion, it is evident that the joint is 40 per cent disabled."[13] This concept, multiplied throughout the human body, of course, results in the conclusion that each part of the body has a certain function and that they all add up to 100 per cent ability to function as a normal person. The fallacy of this concept is, of course, obvious. It excludes each person's reaction to trauma and disease, his powers of compensation, his personality, rehabilitation factors, intelligence, age, etc. It is an attempt to treat a bone or a joint as suspended in a vacuum by itself. It ignores the total person. It should be abundantly clear that it is the total person that reacts to the injury. One cannot separate the brain, the central nervous system, the cardiovascular system and body chemistry from the musculo-skeletal portions of the body as they are interdependent upon one another. This is the fault of the American Medical Association's "Guide" and others mentioned of disability evaluation and impairment evaluation. These are unidimensional evaluations of the injury whereas we are polydimensional human beings. As Kessler says, "A person lives not only with his pathological lesion, but also with the undisturbed organs and functions. Subtracting a patient's symptoms and signs from 100 per cent is abstract medico-social mathematics."[14]

The fact that there are other factors that, combined with the limited approach of range of motion impairment, make up the complex of total disability, which other factors are difficult to evaluate does not mean that it is more scientific to ignore them. On the contrary, the physician can undoubtedly in the exercise of his honest clinical judgment come closer to assessing the patient's functional impairment or disability taking these factors into consideration than if he ignores them.

Who is this total man against which the "Guide" seeks to establish "scientific" standards?

"We are endowed with a body, which is a self-nourishing, self-regulating, self-repairing, self-starting and self-reproducing machine, installed at birth and lasting like a good grandfather clock for three quarters of a century, requiring very little attention."[15]

The "Guide" of the American Medical Association in a further attempt to formularize the disability of this body argues further and says, "Furthermore, unlike disability, permanent impairment can be measured with a reasonable degree of accuracy and uniformity on the basis of impaired function as evidenced by loss of structual integrity, pathology, or pain substantiated by clinical finding."[16]

Of course, implicit in this measurement is a concept of normalcy.

It is perfectly true that in evaluating disability or impairment one must speak of a deviation from the normal and normalcy is not a scientific fact, but a social conclusion. For as Kessler says, "The concept of a normal being is a social judgment and represents a series of physical traits whose evaluation is influenced by social prejudices and attitudes."[17] In this sense "society has forced the physician to derive a social judgment out of pathology." Isn't this better for the physician and society than to assess impairment solely by resorting to an artificial table of range of motion standards? Doesn't the physician exist as a person as well as a physician "invacuo" and isn't he then able to assist in the evaluation of disability by "deriving a social judgment out of pathology" as well or better than others would be? Who is better able than the physician to resolve the inconsistency and conflict frequently found between the pathology of defect and the economy of working capacity,"[18] as shown by the man lame in two legs who is fully capable of working and the neurotic who is completely incapacitated.

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[12] John Day Company; New York 22nd ed., Page 6.

[13] McBride—"Disability Evaluation"—5th edition—1953—J. P. Lipincott Co., Page 37.

[14] Supra, Note 1, Page 91.

[15] Supra, Note 12, Pages 29-30.

[16] Supra, Note 3.

[17] Supra, Note 1, Page 94.

"The human being is a composite of balanced forces. Constant adjustment of body structures through reflex and voluntary stimuli is necessary to create the mental and physical activities of life. Man's whole body records his emotions and manner of reasoning. Sudden interruption of the normal body functions through disease or injury calls for a new role of the neuromuscular and emotional mechanism. Disability can be overcome only if the intelligence and ambitions of the affected individual can defeat discouragement and inspire determined adjustment toward rehabilitation."[19]

The real crux of the author's quarrel with the American Medical Association's "Guide" is that it does not treat either impairment or disability of a part or of the total person on the levels necessary to approach accuracy. The author sympathizes with medicine's problems in impairment evaluation and insofar as it has a part, in disability evaluation; but to exchange the admittedly unscientific device of the doctor's estimate of disability evaluation for the worse device of disability impairment mainly because of the physician's sub-conscious desire not to get involved in the whole process is to see as "Hegel saw that the result of the French Revolution was not the realization of freedom, but the establishment of a new despotism."[20]

Even in the field of impairment evaluation which the "Guide" says *is* the doctor's function and limited to the province of the doctor, little is established of probative value. What of the general effects of trauma on the individual?

Dr. Kornblitt, writing on "generalized" and "stress," "Effects of Injury," commented on this subject in this fashion: "Insufficient attention is paid to the generalized effects of traumatic injury. Often these generalized effects may show more disability than the more apparent local injury. . . . The injured individual is a functional whole whose proper performance depends on integrated interdependent actions of all parts of the body. . . ."[21]

A considerable segment of the writing on the subject has demonstrated that trauma is in reality a type of "stress" and that "stress" even without physical contact may produce significantly disabling functions which can be objectively demonstrated.[22]

"It is generally accepted that peptic ulcers of the stomach and duodenum are frequently produced or aggravated by stress and resulting from the generalized effect of local injury in other parts of the body and may represent an overall adaptation of the body to "stress."[23] As cortisone production is one of the generalized bodily effects of trauma and cortisone has been shown to produce or aggravate stomach ulcers, this would be an effect of the trauma."[24]

"There are many other generalized effects of trauma that are overlooked such as weight loss, dizziness, weakness, rapid heart rate, nausea and vomiting frequently diagnosed as a neurotic reaction to trauma sometimes are due to an adverse circulatory adjustment and are in reality due to generalized circulatory changes."[25]

Dr. Kornblitt notes that "changes in the composition of the blood constitute one of the generalized effects of trauma. Thus, changes in blood viscosity after trauma may predispose patients to phlebitis and possibly fatal thromboembolism."[26] Serious changes in the blood clotting time has been noted following emotional stress.[27]

Little is known and considerable is unknown of the changes in body chemistry and metabolism as generalized effects of trauma. It is known that trauma can cause over-activity of the thyroid hormone and produce actual disease of the thyroid.[28]

Then, there is a wide variety of psychosomatic effects of injury and neurotic reactions to injury. Medicine today speaks of the "comprehensive" medical care of the total person. In evaluating disability, this concept is more important. The physician must remember that the patient who comes to the office is often not articulate. Many times he is of relatively low intelligence with a poor memory, sometimes in pain and gives a generally poor account of himself. To attribute secondary gain factors to the patient's history is many times cynical and unfair.

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[18] Supra, Note 1, Page 91.

[19] Supra, Note 13, Page 1.

[20] Marcuse—"Reason and Revolution"—New York Humanities Press—1954—Page 91.

[21] "Current Medicine for Attorneys", Vol. II, No. 9, Sept. 1955.

[22] (a) Supra, Page 8—(b) Hume, "Neuro-Endocrine Response to Injury—Present Status of Problem"—An. Surg., 138: 548-557.

[23] (a) Selye and Hravar, 2d Annual Report on Stress Acta, Montreal, 1952. (b) Gray, *et al*, "Chronic Stress & Peptic Ulcer, J.A.M.A., 147: 1529-1537 (1951).

[24] (a) Sauser, *et al*, "Untoward Gastrointestinal Manifestations of Cortisone Administration," Proc. Staff Meeting, Mayo Clinic, 28: 641-649 (1953). (b) Salasm, *et al*, "Hemorrhage from Stress Ulcer Surgery," 34: 821-825 (1953).

[25] "The Medico-Legal Reporter", 1:1, June 1, 1955, Page 12, Nauman Ten. Law Rev. 23 Feb., 1955.

[26] "Phychosomatic Medicine," 16: 398-403, 1954. "Modern Medicine," Feb. 15, 1955, Page 246.

[27] Supra, Note 21, Page 9, De Takats, Arch. of Surg. XLVIII, Feb. 1944, Page 105.

[28] Johnson vs. Howard, 275 Page (2d) 736 (Wash. 1954) "Strenuous" activity (as may occur in injury) is a substantial factor in the production of an overactive thyroid. Cecil—"Textbook of Medicine"—W. B. Saunders Co., 4th, Page 1203.

By far, the largest problems in disability evaluation come from the evaluation of the traumatic neurosis, psychoneurosis and sequelae to other injuries that result from the projection of the traumatic experience upon the total personality of the individual.

"These problems are created in part by: the gross nature of medicine's measuring devices and instruments; the conditions of examination and the lack of scientific knowledge concerning the effects of trauma on the body chemistry; the endocrine system and the stress of the experience itself; and in part, by secondary gain factors of the patient and the psychiatric reaction of the examiner to the patient's problems, to state just a few of the difficulties."[29]

Yet, the group of patients suffering from the post-traumatic effects of psychiatric injury represent a large segment of the injured. Dr. A. Earl Walker, professor of neurological surgery at the Johns Hopkins University Medical School, had this to say on the subject, "It is extremely important to note that of 430 men having post-traumatic symptoms approximately nine months after injury, only 5 per cent were without complaints seven to eight years later, in spite of many forms of psychotherapy and rehabilitation."

"Of considerable interest is the fact that a large number of patients who develop the syndrome (post-concussion) have never been to the hospital and of those that do go to the hospital, a considerable number of patients develop the syndrome after leaving the hospital, when they are faced with their social and economic obligations."[30] The fact that this happens to people with these social and economic obligations, makes no difference in the eyes of the law for the post-concussion syndrome is compensable.

The middle aged or older patient-client presents a special type of problem. Such a person, after he is over the acute phases of a traumatic experience and is faced with a return to his social and economic obligations, frequently has real problems. This type of person, holding a post in business or from a social point of view, has, in many cases, been getting along with little margin for some time so that minimal injury may so degrade his ability that he can no longer function in his usual activities. Under the law, the *total* result is compensable, for under the law, one is responsible for the legal consequences of his acts. He is not entitled to a perfect physical specimen to injure. In determining disability or impairment, the doctor frequently doesn't understand what type of analysis is pertinent in this connection and hasn't been properly guided in the difference between legal causal relationship and medical certainty.

How far short of the mark of impairment the slide rule of the American Medical Association's "Guide" falls in failing to equate in the injury to the total man, the other factors necessary to determine impairment can be illustrated as follows:

"Emotional and personality factors enter to some degree into any illness. At times, they seriously complicate a physical illness and in many instances, the physical complaints are but the disguised expression of unsolved emotional problems. Modern medicine no longer looks upon the organism as merely a collection of coordinating organs, but as a person in whom the physical, mental and emotional are but aspects of one individual, reactive whole; it believes that whatever evokes a response or adjustment in any of these aspects evokes response and/or adjustment in the others also. One cannot split the individual into a mental part and physical part—he deals with a biological entity. The interpenetration and interdependence of body and mind are so intimate and subtle that there seems to be no physical condition which may not be attended by emotional concomitants and no emotional state that may not evoke physical symptoms, real or apparent. Psychiatry, therefore, is a branch of medicine that applies to a large percentage of patients and not merely to a few "insane" persons who represent the extremes and the end products of psychopathological processes one meets daily in the wards and out-patients clinics of the general hospital. Experience has shown that if the physician is alert to the possibility of its existence he will find some psychiatric problem in 40 per cent of the average clinical material of such an institution. That such problems have been overlooked has been due to the fact that the training of the medical student has often led him to regard as biological only those data which can be measured or visually demonstrated. It is equally important to remember that emotional experiences are also concrete biological facts which should not be ignored since they too may disturb both the patient and his organs. Intellectual, emotional and situational factors are facts worthy of the same considerations as those concerning organ functions and dysfunctions."[31]

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[29] "The Neurotic Plaintiff and His Lawyer"—Koskoff, Connecticut Bar Journal—September, 1958.

[30] "Sequelae of Head Injuries"—A. Earl Walker, M.D., Current Medical Digest—April, 1957.

[31] Noyes, "Modern Clinical Psychiatry"—2nd Ed., W. B. Saunders Company, Page 547.

Nevertheless, despite the psychic effect of every traumatic experience, most doctors, with the exception of the psychiatrists, have more than a reluctance to include these effects in their assessment of *impairment* of the total man. And *it is impairment* as used by the "Guide" and not disability. The reason for this is obvious.

Unconscious bias is a human weakness. Doctors are no exceptions. A family physician, caring for an injured head of a household, has deep emotional attachments to patient and family. In litigation proceedings, he may go a long way to give the patient the benefit of the doubt. By the same token, like it or not, consciously or sub-consciously, the physician who examines for the defendant has been placed in the adversary atmosphere. He frequently has been conditioned against the plaintiff.

And so, let's recognize all of these factors previously mentioned and try to evaluate disability, not in the light of an attempted "scientific" "guide" or table which suspends a bone *invacuo* but with full recognition of the problems of the total person.

How then can disability be evaluated? The expression of disability should be on two levels—occupational and non-occupational.

"In determining disability occupationally, it should be expressed:

(a) In terms of the patient's inability to perform his usual occupation;

(b) In terms of the patient's inability to substantially perform certain other types of occupation;

(c) In terms of the patient's inability to substantially perform any occupation.

"In determining disability of a non-occupational nature, it should be expressed:

(a) In terms of the patient's inability to function on a physiological level;

(b) In terms of the patient's inability to function on a social level.

"This type of expression of disability is basically a functional approach. But although the law does compensate one separately in effect for the loss of an organ, a pathological lesion, or a mental disorder or damage, by far the most important factor in both evaluating disability and assessing monetary damages is the effect functionally, that the particular injury had on the individual patient."[32]

It is obvious that the "total man" disability evaluation concept on a functional level as outlined by the writer is even less capable of "percentage" disability evaluation than is the individual joint. It is also perfectly true that the Workmen's Compensation Act requires the expression of disability in percentage terms and this the doctor only is permitted to do. In such cases, the doctor, relying on his experience, his clinical judgment and his common sense, must do the best he can to make an evaluation in percentage terms. But in negligence cases, this is neither necessary nor desirable. It is sincerely hoped that the time will soon come that the pretense of "scientific" percentage disability will be abandoned and substituted for it will be the expression of disability in terms:

1. Occupationally
    - (a) can the patient perform his usual occupation
    - (b) the patient's ability to perform other types of occupation
    - (c) the patient's ability to perform any occupation
2. Non-occupationally
    - (a) can the patient function on a physiological level
    - (b) can he function on a social level.

No formulae are necessary. No complicated tables must be consulted. No crystal ball. Just the exercise of ordinary common sense is the solution to this problem.

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[32] Koskoff—"Medical Trial Technique Quarterly"—1956 Annual, Pages 408-409.

Trauma And Disease In The Courts

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Few are the physicians who enjoy testifying in court or who approach pending litigation without a feeling of frustration and irritation, grounded upon a belief that their valuable time is to be wasted and their talents dissipated by a complex, protracted procedure which has no relationship to their professional calling. Yet, if the physician were to contemplate upon the reason for his required presence in court, he would quickly discover that he has no one but his own profession to blame for this happenstance, and I might add, he should be justly proud of this. For it is the medical profession, with its strict requirements of education and its progressive attitude in the encouragement of research and development, as well as its substantial program of public relations as conducted by the American Medical Association, which has made the physician of our day the universally regarded, and indeed almost infallible, spokesman concerning the morbid conditions suffered by the human body. Our courts today will not consider any but the most evident medical question without testimony of the physician, and this has been developed to such an extreme that it has been said that the litigant has no choice in the matter but is forced to depend upon expert medical testimony in order to bring his case before the jury.[1] Therefore, having made himself indispensable, the physician must enter the court room with the positive attitude that he is there to redress a wrong and to give of his knowledge so that society might more perfectly apply its norms to reach a just determination. He has been trained to ease the physical burden of his fellow man, but he also must exercise his talents to balance the pecuniary burden which may be borne unfairly.

In order to properly qualify himself with this necessary aspect of his work, he must look into the etiology as well as the pathogenesis of disease. Here let me note that the attorney is many times appalled at the attempt of physicians to avoid assigning a specific cause to a morbid condition even when it appears that the doctor strongly suspects that it does arise out of traumatic origin. The practitioner who conducts himself in such a manner does a grave injustice to his patient, especially when we consider that he alone can supply the causal relationship which the courts seek.

The author recalls the case of a young longshoreman who lost the use of his hands for a considerable time after unloading cement in the course of his employment. Excerpts from his dermatologist's report are indicative of this negative attitude:

> A diagnosis of chronic allergic eczema was made because the eczematous process stopped markedly at the wrists (at shirt cuff level) . . . . I could not ascertain the cause of eczema as Mr. X is no longer employed. . . . I do not wish to imply that I blame his former type of work as the cause. I feel that it should be eliminated by tests as the possible cause of the eczema.

To the conscientious physician, who considers himself neither a plaintiff's or a defendant's doctor this paper is directed as a guide to what one lawyer considers desirous in the preparation and testimony of the medical doctor.

New Concepts In Trauma And Disease

The study of law, said Edmund Burke, ". . . renders men acute, inquisitive, dexterous, prompt in attack, ready in defense, full of resources. . . ." These attributes were never more necessary to the trial lawyer than today, as he finds himself engulfed in a quagmire of technical data which he must ford in order to properly comprehend his case

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[1] Quackenbush v. Vallario, 114 Conn. 651 (1932).

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and to obtain a satisfactory result for his client. As a corollary to this trend, the personal injury field has seen an increasing number of seminars and publications designed especially to impart some understanding of medicine to the trial attorney. A lawyer, working enthusiastically for his cause, often comes upon a medical theory which he suggests to the physician and which, he feels, might be applicable to his client's case. There is no question that this procedure creates a great deal of resentment among members of the medical professional, so much so that it appears to have resulted in a rather evasive tenet enacted by the joint Medical and Bar Association.[2]

When properly presented, however, the suggestion of the attorney even on medical questions should carefully be considered by the physician, not as an attempt by the layman to invade his professional domain, but rather as a sincere effort to open up new vistas of inquiry in an area which the practitioner may not have considered. Just as the medical literature of the practicing physician is generally concerned with treatment, so the medical publications geared to the attorney usually deal with the question of etiology of a disease. Thus, on many occasions if the attorney has exhausted the literature on the subject, his research may serve as a guidepost for the physician.

It is important to understand that the experienced attorney will not propound his own view of the question, but will merely attempt to receive the expert opinion of the consulting physician concerning the applicability of an accepted medical theory to the facts of his case. An honest inquiry on his part, and its careful consideration by the physician, will result in a more thorough understanding of the case by both men. For in the final analysis, it is not the opinion of the attorney that has any value but only that reached by the physician, based on adequate medical evidence which will be acceptable to the court of law.[3]

A published instance of this kind of cooperation occurred recently in a case tried at Bridgeport, dealing with the question of Parkinson's Disease.[4] The plaintiff, a fifty-nine year old male, was injured during July of 1953, when his truck overturned as a result of defendant's negligence. Striking his head on a concrete pavement, he sustained contusions of his head, back, right hip and leg. In the spring of 1954, he began to show a slight tremor of his right hand which worsened gradually. His condition was diagnosed as Parkinson's Disease. The trial centered about divergent expert opinion of the physicians for both parties as to the etiology of Parkinson's Disease. The opinion of the Supreme Court of Connecticut indicates the effects that the medical research of the plaintiff's counsel had in this case.

> The plaintiff offered Dr. A, as an expert medical witness. He testified over the defendant's objection, that, in his opinion, a causal relation between the plaintiff's injuries and his condition of Parkinson's Disease was reasonably probable. The witness had previously stated that his opinion was based upon authorities which he had read and his own knowledge. . . . On cross examination the defendant offered a medical report made by Dr. A to the plaintiff's counsel on March 12, 1957, in which the physician stated that he could find no causal relationships between the accident and the plaintiff's disability. The report was duly received (into evidence). On redirect [examination], Dr. A was permitted, over the objection by the defendant to state in explanation that he had changed his opinion, as contained in his report of March 12, after he had seen the statements of two eminent neurologists, Dr. Derek E. Denny-Brown of Harvard Medical School and Dr. Israel S. Wechsler of Columbia University Medical School. . . . On recross examination, the witness conceded that the medical textbooks had been shown to him only the day before by the plaintiff's counsel.[5]

The jury awarded the plaintiff a verdict, which was later overturned by the Supreme Court on an evidentiary question. On the retrial, the parties entered into a settlement agreement.

Causation In The Courts

The abstractness of the law probably reaches its akron in considering the concepts of causality as described in the legal descisions. Yet as an attorney must familiarize himself with some fundamentals of anatomy and physiology in order to property present medical evidence, so must the physician understand the rule of causality in order to properly prepare for a legal action.

In order for a person to be liable for another's bodily harm, it is necessary that the actor's conduct be negligent towards the other, and also that the negligence of the actor be a legal cause of the other's harm.[6] A legal cause is defined as an act which is a substantial factor in bringing about harm,[7] as distinguished from the purer philosophic concept of cause, which includes every one of a great number of events without which any happening would not have occurred. "Substantial cause" is a layman's concept and may be used synonomously with a significant, a primary or an important cause in the operation of the effect. The physician will have little difficulty in visualizing the causal relationship between trauma and a fractured pelvis, or a contusion of a knee. The difficulty in applying the principle normally comes into play when a factor in the disease is a natural force, operating independently of the traumatic act. Take, for example, the much litigated problem of cancer resulting from a single episode of trauma, which has been extensively discussed within legal circles.

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[2] *Principles of Cooperation,* Connecticut State Medical Society—Connecticut State Bar Association [Rev. 1961].

[3] This is a two way street. As we will see in the discussion of demonstrative evidence, infr p. 16, the lawyer may receive valuable aid from the physician on such legal questions as the presentation of evidence.

[4] Kaplan v. Mashkin Freight Lines, 146 Conn. 327 (1959).

[5] Id. at page 329-330.

[6] What acts constitute negligence need not be considered by the physician as only the description of the act itself, i.e., a blow upon the head and its consequences has any relationship to the injury.

An interesting Pennsylvania decision[8] describes the case of a thirty-eight year old single woman, who received *inter alia,* a direct blow to her right breast, when she fell alighting from the defendant's streetcar. A few days after the accident, she noted a discoloration of her right breast. This soon cleared up, but about two months later her physician observed, and was able to palpate, a small lump which had formed in the same area as the initial discoloration. The plaintiff's condition was diagnosed as carcinoma which required the performance of a radical mastectomy. At this time, the pathological report indicated that the cancer had metastasized. The plaintiff's medical expert, chief of the breast clinic at the American Oncologic Hospital, Philadelphia, whose testimony was characterized by the court as containing some "indefiniteness or uncertainty", concluded that the single trauma was the cause of the cancer, although other factors may have contributed to her condition. The plaintiff's other expert testified with greater certainty as to the causal relation between the trauma and cancer. The appellate court in upholding a verdict for the plaintiff accepted the expert testimony as substantiating the fact that the trauma was a substantial cause of the cancer, although not the sole cause. In effect, the court argues that if more than one cause substantially contributes to the injury, then either of the causes, so contributing, would be legally responsible for the injury.

This is an enunciation of the second major doctrine of legal cause, the concurrent cause. This is simply illustrated in the case where a party driving through an intersection is struck simultaneously by two vehicles, one from the rear and one from the side. Assuming that both parties were negligent, *each* would be responsible for the full amount of resulting damages.[9] So, in the Pennsylvania decision discussed above, the evidence indicated that the trauma was one substantial cause of the malignancy, concurring with a "force of nature", considered to be the other substantial cause.

A physician who understands this principle will have less difficulty in committing himself to a statement that a certain trauma was the cause of an injury. A common way of expressing substantial cause is in the terms of "reasonable medical probability," which is so often used in the courtroom. But more of this later.

Add to the concepts of causality, which we have just discussed, the old legal maxim that a tort feasor (one guilty of intentional, reckless or negligent conduct resulting in injury) takes his victim as he finds him, and the physician will have no problem in coping with the legal questions of aggravation of an injury, susceptibility towards a disease or precipation of a death.

These terms are used so interchangeably that it is of little value to technically define them. However, most lawyers use these terms as follows:

Aggravation: an increase in the severity of the symptoms or disease, or an exacerbation.

Susceptibility: a predisposition toward a certain symptom or disease.

Precipation: a hastening of a natural course of events.

William Curran, in his enlightening book on medico-legal problems,[10] describes what he calls the dimensions of trauma, three norms which can act as a very useful test in determining the extent of aggravation suffered by the patient. Consideration must be given, he says, to (1) the event; (2) the individual against whom it is exerted; (3) the relationship in the time and place (or environment) between the event and the individual. Using these tests, the author has formulated the following: If the external force so operates upon forces acting within the individual, whether the internal force be organic or emotional, so as to exacerbate a pre-existing condition, the aggravation can be considered a direct result of the trauma. The necessity of some postulate is indicated by the tendency of many physicians to misunderstand the requirements of legal causation.

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[7] Restatement of Torts, 431.

[8] Menarde v. Philadelphia Transit Co., 376 Pa. 497, 103 A 2d. 681 (1954).

[9] If two forces are actively operating, one because of the actor's negligence, the other not because of any misconduct on his part, and each of itself is sufficient to bring about harm to another, the actor's negligence may be held by the jury to be a substantial factor in bringing it about. This theme has many variations, most common of which is the situation where no damage would have occurred but for the combined action of the two causes. A passenger is discharged from a common carrier in the center of the road and is struck by an oncoming vehicle, but for one act, the other would not have happened.

[10] *Law and Medicine,* Little Brown and Company, 1960.

In a recent situation, the author was confronted with a sixty-four year old widow, who had a long history of severe diabetes. After an automobile accident, her diabetic condition worsened, and she claimed that this was the result of the accident. Her physician, when asked about aggravation by trauma, stated that, although there was aggravation, it was not a direct result of the accident. He explained that as a result of the accident she became extremely nervous and, consequently, began eating in such large amount that her diabetes became uncontrolled. He was, therefore, of the opinion that the direct result of the temporary aggravation was overeating, and that the trauma was only an indirect cause. Obviously here, the attorney accepting the statements of the physician, can declare legally that the patient's condition was directly aggravated by the accident.

Expert Diagnosis

We have discussed in detail the problem of legal causality in relation to a patient's injury at the commencement of this paper. Overlapping this problem is that of the expert's diagnosis — a strictly medical procedure, which takes on another hue of meaning when employed in the courts. Although the dissimilarity between the training and practice of the physician and the attorney are often stressed, one of the most useful instruments of both professions is often overlooked—the narrative of the patient. The attorney, in preparing his case, measures all of the evidence in his possession against the caliper of his client's account as to the facts in issue. He assumes his client is telling the truth, and, indeed, this assumption is at the very foundation of the entire judicial process, with the penalties for perjury acting as a deterrant to those who might wish to embellish upon the truth in the courtroom. So, too, the medical practitioner, in eliciting the history of a patient in the average non-litigation case, accepts his statements on its face, confident that a man who wants to be helped will be sincere in describing his symptoms. Yet, the same physician, confronted with the very same patient in a situation which suggests litigation, will immediately question the history and subjective symptoms of the individual, instinctively feeling that in this instance he must make a judgment as to the veracity of the patient. It is understandable that the ordinary person, confronted with trauma (a wound or an injury, physical or mental, produced by an external force or influence), will tend to associate most of his subsequent complaints with or as arising out of the traumatic experience.[11]

If the physician were to treat a litigation case in the same manner as any other, he would assume that the patient who complains of headaches, nausea, back pain and nervousness, is actually experiencing these symptoms. Start from this premise, and no attorney will argue over your diagnosis. We will soon see the specific problem that one is faced with in those cases which seem to be built upon the foundation of subjective complaints, and we hope that we can offer some suggestions which might make the task simpler.

I also feel that we must keep in mind throughout this discussion that the lawyer's concept of diagnosis is rather different than that of the medical profession. The attorney, accustomed to dealing with an unalterable factual situation, considers diagnosis as an unalterable determination which must be made prior to the subjection of the patient to treatment. The concept of differential diagnosis is not thoroughly understood. On the other hand, a "working diagnosis," albeit a valuable medical tool, cannot be of any beneficial use in the law courts, where the physician's testimony must be heard on more than a suspicion in order to be accepted. The expert's evidence is, when reduced to its essence, an opinion of one who has through training or experience and unusual knowledge in a particular field of endeavor. Translating this requirement to the medical diagnosis—in order to be justified—it must be *in the expert's opinion,* a reasonably probable conclusion based upon all his knowledge of the case. This statement further brings out two considerations which must be studied in some detail.

The first, that *the physician have complete knowledge of the case.* As a plaintiff's attorney, the author has never prepared a case without being certain that any physician treating the plaintiff had copies of any reports in his possession of all other physicians involved. In a case which the author tried a few years ago, the plaintiff fell down a flight of stairs, receiving serious sprains and contusions. At the time of the accident, she was pregnant and it was the opinion of her physician, who was treating her injuries resulting from the accident that she had toxemia of pregnancy. During the trial, there were strong statements by this well-meaning general practitioner connecting the accident with her complicated pregnancy. The bubble burst, rather quickly, when the defendant's counsel asked:

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[11] "The physician should assume that his patient's opinion and history are sincere. . . .The patient's convictions rest on the principle of *post nos ergo propter hoc.* All of us are heirs to this ancient fallacy. In guarding against it, the physician may easily fall into another error—refusal to accept a cause and effect relationship, because he cannot visualize the slip in pathogenisis whereby the results of the injury become manifest as the disease. He may become so exacting in his demand for scientific standards of evidence that he often completely ignores clinical experience." Brahdy and Kahn, *Clinical Approach To Alleged Traumatic Disease,* 23, Boston University Law Review, 238 (1943).

Q) "Doctor, did Mrs. A. have a normal labor?"

A) "I don't recall."

Q) "Well, were there any complications involving either her or the child?"

A) "I don't know."

Q) "As a matter of fact, Doctor, isn't it true that you do not know if she did give birth, let alone when?"

A) "I was not her obstetrician."

Q) "I understand that. Could you tell us who her obstetrician was?"

A) (Pause) "I can't find it in my notes, but I'm certain she went to one."

Q) "You mean to tell us that you never consulted any other physician in regard to her pregnancy?"

A) "That was not my problem."

Q) "Then how can you state that this fall that she had affected in any way her condition? You couldn't have thought it very important if you didn't even bother to advise her obstetrician about it."

It is also wise for any physician, in addition to contacting all medical men involved, to personally view the x-rays (in addition to obtaining a copy of the roentgenologist's report) ; read through the hospital record and any other institutional records which might be pertinent. If these measures are not carried out, the physician, at least from his position as an expert witness, is in serious jeopardy.[12]

The physician must also completely familiarize himself with the prior medical history of the patient. In the normal course of practice, a history of a previous back injury may be noted but may not have any great significance in *treating* the patient for his present back symptoms. In litigation, however, it behooves the physician to determine by whom the patient was formerly treated and at what stage he was discharged. This also holds true with service-connected disabilities, where the Veterans' Administration records should be carefully inspected in order to avoid any surprise at trial.[13] With all this spade work completed, the physician is fairly well-prepared to testify in court and to intelligently face the opposing attorney on cross examination.

The second consideration is that *the physician must state his opinion in an assured manner once he has made his diagnosis.* When the physicians accept the fact that the courts do not require them to state their conclusions in terms of absolutes, but only in terms of reasonable probabilities, they should have little hesitation in this regard. The problems which do arise, however, seem to concern themselves mainly with the acceptance of subjective symptoms of the plaintiff. Being not amenable to physical exploration,[14] this type of symptom receives rather bizarre treatment at times. Some medical practitioners, notably those examining patients for insurance companies, tend to completely ignore or discount them. Other competent physicians, who seem to be concerned mainly with organic disorders, e.g., orthopedics, will, if they do not find physical limitation, state that there are no positive findings and that any subjective disability should have terminated by this time.

There are, however, too many instances of subjective symptoms causing actual disability, so that they cannot merely be ignored. It has been said that, ". . . if there is any one fact which stands out in this matter of evaluating subjective disability, it is the matter of the patient's confidence in the physician's integrity."[15] Barritt argues, and with good reason, that the patient may exaggerate these symptoms when he feels that the examining physician will minimize the same. He then describes some elements which he feels are helpful in enabling the physician to ascertain the seriousness of the patient's complaints, as follows:

1. The type of injury sustained and the complaints which may be expected to arise from such an injury.
2. Type and duration of treatment.
3. Complications, such as infection, etc.
4. Aggravation of pre-existing, but non-disabling condition.—
5. Objective findings such as atrophy, deformity, swelling and muscle spasm.
6. Pre-existing condition; which, while unrelated to the injury, is nevertheless complicating the complaint.
7. The patient himself as an individual—age, personality and threshold of pain.

Using these and other auxiliary signs as guideposts, the physician should be in a position to evaluate the subjective symptoms of the plaintiff and incorporate them within his diagnosis. As a practical matter, the family physician who has treated the patient, or has known him for a considerable time, will tend to believe what the patient tells him; whereas, the examiner for the defender, who sees the patient for one hour, may at least ostensibly refuse to accept any of these complications. This has brought on the unscrupulous practice of the confidential report, wherein an insurance company will receive two reports concerning the examination—one which is furnished to the plaintiff's attorney and used in court, the other giving the physiscian's true opinion of the ills which confront the patient and which is only seen by the company. Needless to say, the first report will discount any subjective symptoms.

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[12] See, Johnson v. Toscano, 144 Conn. 582 (1957) . The court, in excluding medical evidence as "speculative opinion of doubtful value which is intended or is fairly likely to mislead the jury, based its ruling upon the fact that the physician did not examine the hospital records, x-ray reports, nor the reports of other doctors.

[13] In these cases, we should take time to familarize ourselves with the Veterans' Administration's method of evaluating disability as the percentage of disability for pension or benefit purposes may differ from the actual medical disability.

[14] Goulds Medical Dictionary.

[15] Barritt, "The Evaluation of Subjective Disability", 25, *Industrial Medicine and Surgery*, 417 (1956) .

Perhaps the strongest justification for the presence of subjective symptoms is the experience of the physician and other medical authorities. For example: It appears to be well-established that a whiplash-type injury does cause headache and neck pain, perhaps even years after the initial trauma; yet, many physicians confronted with an individual who has sustained this type of injury will refuse to accept his subjective complaints if more than a few months have elapsed. So also do fractured ankles commonly give rise to swelling and pain for a considerable time after the trauma. However, once the limitation of motion has ceased, doctors will fail to accept these symptoms—although they are notorious in medical history.

Use Of Demonstrative Evidence

Complex as the judicial process may appear, its purpose is merely to seek the truth and to compensate or punish accordingly. To reach a just result, it is necessary for those who are to determine what is the truth to comprehend all the factors which must be reflected in their final decision. In a personal injury case, the jury, after determining liability, must ask themselves what is the nature of the injury and how has it affected the plaintiff. As you can imagine, it is impossible for them to reach a desirable result unless they completely understand the anatomy, physiology and the pathology of the part involved.

Consider, for example, a patient who has had a herniated lumbar disc removed. Could a jury adequately award that patient if it did not understand what a myelogram is, the reaction that many people have after a myelogram, the function of an intervertebral disc, the actual description of a laminectomy and the prognosis after an operation of this nature? In the brief time which the physician has upon the witness stand, he must impart all this information to the jury and describe it in such a manner that the jury will understand it.

If the question were simply how can these matters be best presented to a group of laymen, I doubt if there would be any hesitation in suggesting the use of visual and graphic aids. It is not uncommon to see a surgeon, who is attempting to explain the mechanics of an operation, pull out a medical illustration, or take a piece of paper and quickly make a sketch, to bring out his point. Unfortunately, such agility and informality is seldom displayed upon the witness stand where the physician tends to buttress himself with the armor of technical jargon. Certainly the courts, with their reluctance to accept new ideas, based upon the old legal maxim of Stare Decisis which encourages resistance to change, have not encouraged any innovations. In addition, the lawyers in Connecticut have found this state to be rather restricting in the use of medical demonstrative evidence, as compared to many more liberal jurisdictions—such as California.

In almost all cases, the physician has furnished the plaintiff's counsel with at least one report describing in fairly technical language the history, findings, diagnosis and prognosis of the patient's complaint. When he takes his place upon the witness stand, he more than likely reads verbatum from this report, dutifully enlarging upon any terms or procedure mentioned therein when asked by the plaintiff's counsel to do so. After the testimony is concluded, the jury is still in the dark as far as the medical procedure is concerned; not because the medical doctor failed to explain the material properly, but rather because the jury had no point of reference upon which to follow the testimony. In addition, tests conducted by the armed services have shown that retention increases up to 55 percent when photos or illustrations are used to accompany oral testimony.

There are two categories of medical demonstrative (physical) evidence, which might be classified as—(a) actual, (b) indirect.

Actual demonstrative evidence are those physical exhibits which were actually used as part of the treatment of a patient and not prepared necessarily for trial. In this category are such common items as hospital records, x-rays, electrocardiograms, prosthetic devices and surgical instruments. With little exception, most of these items are admitted into evidence upon the basis that they were actually used in the treatment of the patient.

Indirect demonstrative evidence are exhibits which have been prepared for use by the witness testifying in order that his testimony can be more understandable. Under this category fall such items as medical drawings, models, skeletons, books, etc. In order for these to be admitted into evidence, the witness (i.e., the physician) must testify that the exhibit will aid him in rendering his testimony.

A medical practitioner may be of enormous help to the attorney by suggesting to him some of the actual evidence which was used during treatment, and which may be available for use in the courtroom. An example of this may be motion pictures, taken during surgery, or color progress slides made during the treatment of scar tissue. Steinman pins, Kirschner nails and Thomas collars are all effective before the jury. If you ever have the opportunity to speak before a lay group on either medicine or surgery, I am certain that you will notice that the interest and attentiveness will improve considerably if you bring some instruments along with you. Let me emphasize once again that the purpose of these aids is not to unfairly prejudice the jury, but only to give them a clearer understanding of the procedure which you may be describing.

The presentation of indirect physical evidence calls for the cooperation of both the physician and the lawyer, as by its very nature it is not a part of the proceeding until it is introduced at trial to aid in a witness's testimony.

Take the case of a herniated cervical or lumbar disc. One of the most effective ways of getting the jury to understand the seriousness of the problem is through the use of medical diagrams and a model of the spinal column. Both these items will show how the collapsed nucleus pulposus causes one vertebra to rub against the other with any motion of the back. With a diagram of the nervous system, the physician can graphically trace the sensation of pain all the way into the sciatic nerve and into the leg. Without these aids, it is practically impossible for laymen to visualize how an injury in one part of the body can affect an appendage which was not directly hit by the trauma. The secondary effects upon the posture and the changes in body mechanics caused by the patient favoring the injured part of his body may all be illustrated.

Another interesting use of demonstrative evidence which is very seldom, if ever, used in this jurisdiction, is an accurate drawing from an x-ray. The difficulty which the untrained eye finds in distinguishing a positive and negative picture in the shadowbox can be clearly seen when drawn-to-scale by a medical illustrator. Although there may be a question as to the admissibility of this type of evidence, its value recommends that it be tested.

The nub of this entire discussion is that the physician, in presenting his evidence, must start off with the correct assumption that the jury is completely ignorant of all medical terms and procedures. Act as a teacher and assume that the court is your classroom and the use of demonstrative aids should then come to mind naturally. The effect will not only impress the jury, but aid them considerably in the determination of the case.

Conclusions

With each passing year, new relationships between trauma and disease are being discovered. Whether this is due to the acceptance of a more advanced social responsibility, which recognizes the importance of assigning liability where there is fault, or to the investigations conducted by employers and insurance companies in the Workmen's Compensation field or, merely due to the increased interest in research, so prevalent in the advance of medical science is of no importance to us now. The attorney, as well as the doctor, can probably, by going back in his own memory, recall the time when there was no link between trauma and cancer, trauma and myocardial infarction or trauma and psychoneurotic disorders. Yet, today, the fact of a simple traumatic causation is accepted in these cases, as we have moved on to the more subtle problems imposed, particularly when one considers effect of stress on the entire body system and the effect of casual habitual trauma—as one may experience everyday on one's job.

Just as happens with so many other things in this world, the more knowledge we receive upon a subject, the more we realize the complex effects which flow from each cause. Thus, as we are finding out today, trauma has a much more generalized effect over the body mechanics and systems, both physical and mental. Perhaps this is the challenge of the next decade: For the attorney to take up these medical theories out of the university hospitals, and to bring it to the attention and acceptance of the general practitioner. Some might say, we act as a mere conduit; others feel that our medical endeavor is more in the nature of a catalyst, resulting in a swifter acceptance of new medical theories. Whatever our function—as attorneys we have one—the interest which the legal profession has in medical questions has certainly benefited both the professions and the general public. Much medical research has been the result of court decisions, as well as brought about the improved techniques in the care and treatment of patients. With increased cooperation, both professions should gain greater understanding for each other's work—to the benefit of the general public.

CONNECTICUT MEDICINE

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EDITORIALS

The Personal Physician In A Changing World

Nihil magis aegris prodest quam ab eo curari a quo volunt.

"Nothing is more advantageous to invalids than to be cared for by the person they wish." —Seneca.

The image of the American physician in the public mind especially as portrayed in the press has undergone a deplorable change, at the worst he is a reactionary money seeker, in the middle view he is a well-motivated but narrow-minded participant in a changing social scene, a professional unable to see beyond the immediate problems of diagnosis and treatment and fee for the same. At best "he is sceptical towards data of his own profession, welcomes discoveries which upset his previous hypotheses and is still animated by human sympathy and understanding."[1] Which of these views are deserved and which are biased? Since the last statement was made by that great philosopher Alfred North Whitehead and derived from his own experience with his physician we would like to believe that this comes nearer to the true image of the physician than that in the press which we would like to believe is biased.

If we are sceptical towards data of our own profession and, if it is true that we welcome discoveries which upset previous hypotheses, then we ought to be ready to ask ourselves some searching questions. Are we deserving of both the blame and praise stated above? Are we good doctors, are we sufficiently sceptical? Is it true that we welcome findings that upset previously held opinions? Are we animated by human sympathy and understanding? Is our profession ready to adapt itself to the new winds of social and scientific change that are blowing through this decade of the sixties?

To successfully adapt to change first requires a correct assessment of the nature of the changes that are taking place under our very eyes. One type of change is the result of the accelerating expansion and complexity of medical and biological science. This has altered to an almost unbelievable degree the potential quality of medical care and has through wide publicity planted an image of an optimal medical care in the mind of the public so that they have been educated to expect and even to demand it. Another factor is social in nature and is due to a relatively faster increase in population than in the number of physicians. This is especially important since there are many more older citizens both absolutely and proportionately who require more medical care at a time when there are fewer physicians to administer it. A final factor is economic in nature and is the result of the great increase in the cost of medical care and more especially hospital care which has really skyrocketed. The profession is thus confronted with technological advance and social-economic changes, which call irresistably for experiments in improving the mechanisms for providing medical care. But it also calls for deep thinking not merely in providing it, but some soul searching on the question of how to preserve the personal relation between patient and doctor.

Methods providing medical care are under extensive experimentation among which, group practice, group insurance and experiments in the use of public funds are under close scrutiny. In all these social experiments the physician must play a central role.

He must have a major voice in their design or else the ball will be carried by others who know nothing of medicine, of the patient's needs, nor of the central role of maintaining the personal relationship between doctor and patient which philosopher Whitehead lauded so, and which Seneca voiced in the quotation above.

An analysis of some of the experiments that are taking place especially in the realm of group practice has just appeared.[2] It is one way to solve the problem of structuring the skills of individual physicians representing several fields of medicine into a single organizational unit capable of providing the integrated medical care needed today. That this method is meeting with success is attested by the tripling in the number of such groups in the last fifteen years and the favorable income level of their members as compared to those in solo practice. Without doubt it must contribute to the continuing education of the members of the group. It is certainly easier to meet the continuing challenge of increasing technology by co-operation of minds than through the solo effort of any practicing physician. But there is also a need to restore and maintain the unity of the patient care which has been badly fragmented in the highly structured medical staffs of hospitals, medical centers and the outpatient departments.

While the image of the physician has changed for the worse as the problems of distribution of medical care have intensified, the physician himself has changed for the better. Forty years ago the physician was merely cataloging diseases by descriptive labels. Now he can be a scientist, capable of understanding the basic mechanisms of disease and be truly concerned with the whole patient. For as medical science has flowered, so has our understanding of the mind, emotions and reaction of the patient to his disease and this inevitably has increased the doctor's compassion so necessary for good medical care. As the physician has exchanged his role from magician for that of a scientist, a new integrity enters into and enriches his relationship with his patient. Every discussion of a good doctor ends up with exphasizing compassion and understanding. The big areas of experimentation in medical care must make this its central theme—how to retain the "personal" physician.

There is a famous story about Tarpeia who opened the gates of the Roman citadel to the Sabines, and was crushed by the weight of the reward bestowed upon her. Let us not be crushed by having opened the gates of society to medical science and technology. Let us not allow the scientific revolution to devour its own children. We can escape Tarpeia's fate by organizing and extending medical practice but in the process we must ensure that the impersonal physician must never come. Dr. Fox, Editor of *Lancet,* has put the value of the personal physician very aptly: "If people were ever industrial robots, they might need no more than technological medicine. But actually they are not and even in the most highly developed parts of the world they still need personal medicine too. It is because they are aware of this that the older people look back wistfully to the horse and buggy doctor. I know the horse has died and the buggy has fallen to bits, but we still have the doctor and adapted to modern conditions he could often if he wishes, be the patient's own doctor and much more useful at that."

L. H. N.

REFERENCES

1. The Image Of The American Physician Ed. Ann. Int. Med. 55: 527, Sept. 1961.

2. Pomrinse, S. D. and Goldstein, M. S.: The growth and development of medical group practice. J. Am., 177: 765, Sept. 16, 1961.

Nomenclature Of Staphylococci

It is the hope of this editorial to clarify the present nomenclature of that ubiquitous organism, the Staphylococcus.

Offhand, it would seem that the well-established familiar name of any organism should be kept permanently. However taxonomists are no more satisfied with the current state of their field than are other scientists, for example, physicians. When continuing investigations yield more facts about the characteristics of organisms or more accurate information about the intentions of the original describer of the species or genus, the taxonomist feels free to make changes, no matter how radical or confusing. Unfortunately, a subsequent review of the material may lead to still more changes.

In Bergey's Manual of Determinative Bacteriology, the bacteriologist's bible, recent successive editions have really confused the issue, as the following shows:

5th Edition—1939. There were 6 species in the genus Staphylococcus which were aerobic and which occurred in humans. Three species, albus, aureus and citreus were separated by the colony color; three others, epidermidis, muscae and phanyngis were separated by other characters.

6th Edition—1948. In a radical innovation the genus Staphylococcus vanished, to be replaced by Micrococcus. There were now 5 species of human origin; pyogenes, var. aureus; pyogenes, var. albus; citreus; aurantiacus and epidermidis. Again the colony color was a dominant differential character.

7th Edition—1957. The genus Staphylococcus is now reestablished and separated from Micrococcus (a conglomerate of organisms not of medical importance). Furthermore there are only *two* species. *Staphylococcus aureus* (whose colonies can be of any color) is defined as producing coagulase and as fermenting mannitol. *Staphylococcus epidermidis,* the skin contaminant, does not produce coagulase nor ferment mannitol. Differentiation no longer depends on colony color, a variable character very difficult to determine, and one which often changes in different media and on successive subcultures. This current designation will be official at least until 1965 or 1966. It is so sensible and practical that we would urge its indefinite continuation. Hail to *aureus* and *epidermidis!*

R. N. B.

Preconceptions And Scientific Progress

"All fictions disappear before truth and all follies fall before Reason."—Robespierre.

On December 14, 1807 at 6:30 A.M., 300 lbs. of stones fell on Weston, Connecticut. It was extensively reported by Professors Silliman and Kingsley of Yale as a meteoric shower but everyone was skeptical, even the then president Thomas Jefferson who stated that it was easier to believe that Yankee Professors would lie than that stones could fall from heaven.

The scientists nature and his scientific pursuits sometimes show a strange dichotomy, As a member of society he is a product of the cultural norms such as self-interest, politics, religion. As an investigator of nature, he is trained to open-mindedness, to pursue objective tests by which concepts and theories can be validated and is expected to show greater objectivity than is found in other social areas. At the same time he is expected to show less resistance to new ideas, new innovations, new discoveries. In all likelihood this is true. Nevertheless the whole history of science is replete with examples of resistance by scientists to scientific discovery and it would be interesting to know how such resistances arise. Perhaps, if we did know, the scientist would better be able to avoid at least some of the pitfalls arising from these resistances and progress would thereby be facilitated.

Society does not operate on the scientific method but thru cultural forces, while science can only thrive through use of the scientific method. In science, we have to take physical and biological nature as it is without projecting our wishes upon it. In society the scientists are more likely to act like other individuals, have beliefs, wishes, and preconceptions all of which could make a scientist an agent of resistance to new ideas, but also to occlude his mind to truths in nature which he saw but could not recognize because of "cultural blinders." Francis Bacon long ago suggested in his discussion of "Idols of the Tribe, the Cave, the Market Place, the Theatre" that preconceived ideas, general and particular, affect the thinking of all men especially in the face of innovation. Sociologic theory has recently enforced this view by revealing that "idea-systems" that make up a culture and are necessary for man to carry on his life in society and are helpful on the whole can be harmful also because they may blind him in other ways of conceiving a given situation. Apparently scientists with all the methods they have invented to strip away "distorting idols" or cultural blinders and with all their training in evading the resistances set up by such blinders are still as other men, though it must be admitted, to a lesser degree.

Barber[1] has analyzed this problem in a recent issue of science and has called attention to the several ways cultural resistances to discovery arise, and has divided them into those arising from Substantive Concepts, from Methodological Conceptions from Religious Ideas from Professional Standing, from Professional Specialization.

Many examples of resistances from substantive concepts are cited. Copernicus' heliocentric theory was resisted by brilliant astronomers of his day because of their belief that the earth was stable, and the earths motion was ignored or resisted as absurd. Pasteur's discovery of the biological character of the fermentation process was not accepted for a time by scientists whose minds were occluded by a belief that they had to be chemical. Mendel's theory of genetic inheritance was resisted for a long time because of a predominant conception of joint and total inheritance of biological characteristics, rather than paying attention to special characters which Mendel did. It is not true that his work disappeared temporarily because it was published in an obscure Journal as we used to be taught because his paper was available in every country and every academy.[1] The preconception that the atom was an indivisible unit caused resistance to Arrhenius's concept of electrolyte dissociation, to Rutherfords theory of the electronic composition of the atom. It caused the great Kelvin to consider Roentgens discovery of X-rays as a hoax!

Apparently "There is in all of us a psychological tendency to resist new ideas." This led Wm. James to state "I believe there is no science of deception in the investigation of nature which can compare with the fixed belief that certain kinds of phenomena are impossible."

Many methodological preconceptions derive from a state of mind. If you are anti-theoretical or anti-analytical you will tend to accept only that which is presented to the senses. Goethe had a bias against theory and in favor of intuition or direct evidence of the senses. Similarly, Emil Fisher believed the most delicate test was afforded by the sense of smell and couldn't believe that radioactive methods could detect chemical properties of thorum, radium and actinium!

The tendency to think in terms of established models led to rejection of propositions that could only be presented in abstract terms. Electromagnetism was resisted because Ampere's theory of magnetic currents couldn't fit into the Newtonian mechanical model and the view that the magnetic properties were derived from the electrical properties of the atom was resisted by the great Joseph Henry. Kelvin said "I never satisfy myself until I can make a mechanical model of a thing. If I can make a mechanical model, I can understand it." And so he resisted Maxwell's abstract equations. In fact, some scientists have been resistant to the use of mathematics in science. Karl Pearson was forced to found a new Journal "Biometrika" after having a paper of his rejected by the Royal Society in October 1900, on application of statistics to a biological problem. It seems strange to us that only 60 years ago prejudice to mathematics should have been a source of resistance to innovation in biology.

A third cultural source of resistance to scientific innovation derives from the religious ideas of the scientists themselves. Copernicus's heliocentric theory of the universe was resisted by colleagues in part because of their religious beliefs. Leibnitz criticized Newton because he failed to make "Providential Destiny" a part of physics. Scientists felt that in some way Science should justify "God and his World". Religious conceptions gave Darwin's evolutionary theory a very hard time for a while. In England Robert Owen and in America Louis Agassiz offered the greatest resistance on religious grounds.

The professional standing of an innovator is occasionally a bar to the acceptance of discoveries. Many times discoveries are made by younger investigators and their work must be passed on by the judgment of men of the highest standing. Ohm's experiments were ignored because he was an obscure teacher of mathematics at the Jesuit Gymnasium in Cologne, and made little impression on the more noted scientists of the German universities. Papers occasionally are kept from publication and a discovery prevented from getting into print as was the case in a paper submitted by Lord Rayleigh on "An experiment to show that a divided electric current may be greater in both branches than in the mains". The paper was rejected until the authorship was discovered!

The pattern of specialization that prevails at any given time may also be a social source of resistance. Helmoltz's theory of the conservation of energy was resisted because he was not a specialist in physics and spurious arguments were used to reject it, such as it was already known and self evident etc., etc.! Pasteur's germ theory met with violent resistance because he was a mere chemist!

Societies, schools, and seniority though of very great and indispensable value occasionally are understaffed and incompetently run. As happened to the Royal Society in the early 19th century when many papers were rejected, based on bad judgment. Waterston's new molecular theory of gases was rejected by a person who wrote "it is nothing but nonsense."[2] At times the older resist the younger. Academies and learned societies are commonly dominated by the older "foofoos" of any profession. Bacon called it "Scientia inflat." Of course ageing is a general term. But besides biological ageing, a scientist comes deeper under the influence of cultural and social sources of resistance. As he grows older, he is more likely to register resistances because of his substantive and methodological preconceptions and by his other cultural accumulations. This of course is not always so since some older workers in science become the most ardent champions of innovation.

Can it be then that scientists are no more open-minded than other people? Certainly not. Science has a powerful norm in open-mindedness. In science, objectivity is far greater than it is in most social areas and resistance to new ideas definitely less. In science, there are objective tests by which concepts and theories can be validated. In science there are mechanisms for ensuring competition among ideas old and new. We are required to take physical and biological nature as it is without projecting our wishes upon it. By the same token we have to take man's social nature as it is also, recognizing that his behavior in society is not necessarily the same as his behavior in science. This dichotomy produces resistances. Knowing them we can be on guard against them.

L. H. N.

BIBLIOGRAPHY

1. Bernard Barber, Resistance by Scientists to Scientific Discovery, Science *134* 596. Sept.1, 1961.

2. H. Lyons, The Royal Society 1661-1940. Cambridge Univ. Press. Cambridge England 1944. p. 254.

THE PRESIDENT'S PAGE

Recently I had the opportunity to meet at luncheon with an impressive group of community leaders—the purpose of the gathering being a progress report on Connecticut 65 Extended Health Insurance. It is gratifying to report that just over a year from the time of germination of the idea of ten private insurance companies forming an association to make available a real insurance need of our senior citizens, namely catastrophic type coverage, we already have well over twenty-two thousand of those over 65 in our State with this type of coverage. New members, as they become eligible, are being enrolled at the rate of about two hundred a month since October 1, 1961. I am sure you would be interested in hearing of some of the birth pains of the plan.

During the month of September 1961, more than forty-five thousand telephone inquiries were made by the public to the special office set up to inform the public on this new health insurance program. It was hoped that in the initial enrollment period between twenty and twenty-five thousand persons could be enrolled and as you will note from the above statistic the actual enrollment figure reached just between these two limits. In the early weeks of the promotion, in spite of many inquiries, few firm enrollments were being processed. In fact on the last day of the month a total of fifteen thousand applications were received, more than had been obtained for all the days of the month prior to that date and again illustrating the great human habit of putting things off until the last moment. About forty of the applicants died before they became eligible for coverage, which should be an indication of the increased risk entailed in writing insurance for people 65 and over.

Between twenty and thirty per cent of those covered have been enrolled by their children or other close relatives. This fact again displays the strong feeling of family responsibility still prevailing in our society, a feeling which could easily be destroyed if some other proposals for financing the medical needs for the aged were to become effective.

Finally, I must salute the insurance agents who have again demonstrated their support of the voluntary way. Forty per cent of those enrolled were obtained through agents, men and women who make their livelihood selling insurance but who in this case of promoting Connecticut 65 Extended Health Insurance were willing to give of their time and energy with very little return. A large number of advertisements you noted in your local newspaper were placed there at the expense of the local insurance agent. The program is an excellent example of what can be accomplished by local community action without running for help to Washington, D. C. Nation wide interest has been aroused in this program and a great many inquiries have been made as to the possibility of copying it in other states. During the July hearings of the House Ways and Means Committee our representatives in Washington listened with great interest as Mr. Seery described the program.

Thomas M. Feeney, m.d.

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THE HOUSE OF DELEGATES 1961 SEMI-ANNUAL MEETING

Hotel Stratfield, Bridgeport December 7, 1961

At a well-attended session, the House of Delegates of the Connecticut State Medical Society met at Bridgeport on December 7th. In the course of the afternoon, the House considered and acted upon the following:

1) Remarks or reports from the President, the Chairman of the Council, the Treasurer, three Delegates to the American Medical Association and the General Manager.

2) Approved the Budget for 1962, and adopted the recommendation of the Budget Committee that dues for 1962 remain at $33.

3) Voted to continue the voluntary dues increase of $15 per member of the Society for AMEF.

4) Adopted a complete revision of the Society's Bylaws, as published in the November issue of Connecticut Medicine, with the following major amendments:

a) Each component county medical association with a membership of 750 or more shall have one additional Associate Councilor. This will permit the Fairfield, Hartford, and New Haven Associations to seat three Councilors in the Council, as compared to two Councilors in the case of the Litchfield, Middlesex, New London, Tolland and Windham Associations.

b) Added a paragraph to Section 2 of Article XIV—"Component Associations" which reads: *Each component county medical association shall stimulate, foster and cooperate with the local medical societies in that county.*

The new-ly-adopted Bylaws will become effective at 8:00 A.M. on the morning of May 2, 1962, the date set for the 170th Annual Meeting of the House of Delegates.

5) Adopted the following Resolution:

"That the House of Delegates of the Connecticut State Medical Society commend and endorse the purposes and efforts of members of the Society who, on their own initiative, may choose to form or participate in a Connecticut medical political action committee, which committee will coordinate its work with the American Medical Political Action Committee."

6) Adopted the following Resolution:

"That the House of Delegates of the Connecticut State Medical Society reaffirm its long-standing position that the Society shall have physician representation of no less than numerical equality with the lay directors on the Board of any Blue Shield plan it sponsors, and shall retain the exclusive privilege of nominating the physicians to be elected as directors of such a plan."

A DISCUSSION OF RELATIVE VALUE STUDIES ON BEHALF OF THE HEALTH INSURANCE COUNCIL

Richard H. Hoffman is an Assistant Actuary of The Equitable Life Assurance Society, New York City.

The Philosophy Of The Insurance Mechanism

The philosophy of any insurance mechanism is to secure from a large number of people small sums which go into a pool to pay for the losses of the few members of the group who do actually suffer such losses. In almost every situation, it is possible to predict the frequency with which losses will occur and, thus, to know how many *times* the insurance pool will be called upon to provide for a loss. Up until the time the insurance industry developed plans of comprehensive or "open end" coverage without fixed fee schedules, it was also possible to predict with reasonable accuracy the *number of dollars* which would be drawn from the pool since the limits of liability were fixed by the schedules. No matter what the supplier of medical service charged in excess of the allowances provided by the insurer, the charge against the pooled contributions was fixed.

Problems Associated With The Development Of Comprehensive Coverage

The growth of medical care insurance—called Comprehensive, or Major Medical, or Catastrophe insurance—has put the operators of the insurance pools—the insurance companies—on something of a spot. While it is still possible to predict frequency, it is much more difficult to predict the number of dollars which will be charged for any particular service, since it is necessary to rely on what is thought to be the normal, customary and proper charge for that particular service.

If the estimates of the normal and customary charges are correct, the insurance pool will be sufficient to pay the losses that are incurred. If, on the other hand, the estimates are too low or, if the suppliers of medical care are influenced to establish their charges above the usual and customary ones because of the presence of insurance, there will not be enough money in the pool to pay the losses.

Agreement as to what constitutes the usual or customary charge has been no small problem plaguing Actuaries and Claims men, and also the doctors who have been questioned regarding the reasonableness of their charges to insured patients. The establishment of Insurance Review Committees and the development of Relative Value Studies in many counties has cleared the air somewhat in this regard.

The use of the results of these Studies, however, has shown that understanding by doctors, insurers, and the public is less than complete. The development of Relative Value Studies could ease the problems of setting Major Medical's premiums and tend to make these plans more acceptable to purchasers of this form of insurance. It remains to be seen, however, whether or not the results will be good enough to avoid a swing toward the more complicated "closed end" Major Medical contracts with internal benefit schedules.

Role Of Relative Value Studies

(a) *By the individual doctor*—These studies may be used in reviewing the appropriateness of his own scale of charges, and presumably in adjusting some items which may be out of line.

(b) *By the Medical Societies*—Local and State Medical Societies have already used relative value studies in negotiating with local, state and federal government purchasers of medical care (e.g. Medicare). They have also been used as a yardstick in determining usual fees in the adjudications of fee disputes between doctors and patients or their insurers.

(c) *By doctor-run "foundations"*—These foundations set up standards which insurance policies must meet in order to obtain foundation sponsorship. In return for its sponsorship, the foundation can assure that the county's doctors who belong to the foundation (generally over 95 per cent of them) will abide by the foundation's fee schedules and make no additional charges to covered patients.

(d) *By insurance carriers*—Consideration of the doctors' own relative value scale offers advantages to health insurance carriers and their customers in the design of Basic Health Insurance benefits schedules, especially if the fees which doctors charge actually follow their relative value scale with dollar factors that do not vary too widely from doctor to doctor and case to case. The detailed up-to-date relative value studies will also serve companies in the setting of benefits for the many new or infrequent procedures that are not detailed in their own benefit schedules, and in the answering of questions concerning benefits or coverage.

(e) *By Purchasers of Health Insurance*—Employers and unions share the interest of their insurance carriers in the predictability of medical costs. To the extent that relative values may, in the long run, help to overcome spiraling costs (and provide benefits which employees or members will find are more in line with doctors' charges), employers and unions will take an interest. They should recognize, however, that the immediate effect of any careless conversion of these studies into dollar schedules will very likely be to increase medical costs, possibly substantially so. The result will depend upon the reasonableness of the conversion factors that are applied to the Relative Value Studies.

Factors Considered In Assigning Appropriate Conversion Factors To Relative Value Studies

There are many criteria for establishing conversion factors to be applied to Relative Value Studies. Among the more important are the recognized experience, training, and special skills of the physician performing the service; the geographical area in which the service is performed, and the ability of the patient to pay. In this connection, it must be emphasized that while the existence of health insurance assists the patient in meeting his medical expenses, it should not be considered as increasing his ability to pay. The Medical Disciplinary Report approved by the AMA House of Delegates recently, clearly indicates that the patient should not be penalized and charged a higher price because he has been provident enough to obtain insurance against loss.

Another consideration frequently taken into account in arriving at a proper allowance would be the existence of unusual or unexpected complications requiring exceptional time or effort on the part of the physician.

The setting of the conversion factor is something that must be left to the physician and Relative Value Studies should prove invaluable for this purpose. However, if conversion factors are set at an unusually inflated level, the purpose of Relative Value Studies—designed to bring order out of the chaos of fee setting—will have been destroyed.

Uniformity Of Nomenclature, etc.

As new medical procedures are developed and techniques improved, existing relative value studies must be periodically reviewed to add new procedures, delete obsolete ones, and revise unit values to recognize the increased ease or difficulty of applying the new ways of performing old procedures. This, in itself, should serve as an invaluable guide to doctors in the revising of their own fee schedules. With respect to these revisions, we should like to suggest that consideration be given to the adoption of a standard nomenclature. Multiple procedure formulas, fees for assistants and periods of post-operative care to be reflected in the value for the surgical service are other areas which should be considered for study. Standardization of these items are of paramount importance to the insurance carriers.

At Workshop on Technics of Relative Value Studies sponsored by the Committee on Medical Practices A.M.A. at Kansas City, Missouri, September 16, 1961.

Consolidation Of AMEF And AMRF

The American Medical *Education* Foundation was established in 1961 for the purpose of providing financial assistance to medical schools. The Medical *Research* Foundation was established in 1957 for broader purposes, including the provision of financial assistance to medical schools.

Effective January 1, 1962, the programs of AMEF and AMRF will be consolidated within the framework of a single Foundation—the American Medical Association Education and Research Foundation. At the same time, these programs will be expanded and a concerted effort made to provide increased financial assistance to medical schools, in addition to financing the other projects of the Foundation.

1962 AMA DUES

Attention of members is called to an increase in American Medical Association dues, voted by the AMA House of Delegates at the June 1961 meeting in New York. As of January 1, 1962, AMA dues will be $35 a year instead of $25 as at present. The reasons for the increase were outlined at length in the July 10th issue of "AMA News".

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Timothy F. Brewer, Age 30—Specialty Cardiology.

Martin Floch, Age 33—M.D., N. Y. Medical College—Specialty Internal Medicine and Gastroenterology. Available June 1962.

Physician interested in Allergy and Internal Medicine—Group or Institution.

Physician interested in part time employment in industrial medicine in the Hartford area.

ANY MEMBER OF THE SOCIETY KNOWING OF AN OPPORTUNITY FOR PLACEMENT OF THE ABOVE PHYSICIANS, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

1962 MEETINGS

May 2-3-4—Annual Meeting Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

May 3-4 — New England Health Education Association—Spring meeting—Andover Inn, Andover, Mass.

May 18-19 — Connecticut Society American Board Obstetricians and Gynecologists Travel Club meeting in Montreal.

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

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Special Article

How To Avoid "Write Backs" In Medical Reporting

FRANK H. COUCH, M.D.
Hartford

SINCE 1955, when the Social Security Disability Amendments became effective, countrywide, over one and a half million claims have been adjudicated.

Under the law, it is the responsibility of the applicant to furnish such proof of the existence of a disability as may be required. Thousands of attending physicians have furnished reports, and these have been the primary basis for the determinations.

In close to half the claims processed, it has been necessary for the adjudicating team to obtain medical evidence in addition to that initially submitted, because of lack of specific information. This usually means that a letter, or "write back", goes to the reporting physician. Obviously this creates an added demand on the physician's time and delays action on the claim.

The term "disability" is defined in the law as "inability to engage in any substantial gainful activity by reason of a medically determinable impairment that is expected to be of long-continued and indefinite duration or to result in death." Evidence to support "disability" must necessarily be precise and complete as to history, physical and laboratory findings, diagnosis, course and prognosis. *Opinions which are not supported by clinical findings are of little value.*

The Disability Determination Unit in Hartford makes the initial decision as to disabilty for all Connecticut applicants. This agency prepares a written determination in each case, either "Allow" or "Deny". The determination is signed by two professional persons, one of whom must be a physician. The document is quasi-judicial since it is subject to review by courts on appeal by an applicant.

"Write-backs" do not always have to do with current severity. Since in all "allow" cases a date of onset must be established, evidence may be requested as to the date when symptoms of a progressive condition became severe enough to preclude all vocational activity.

In cardiac cases, particularly the post-infarct conditions, information submitted frequently refers to the findings at the initial stage. Because, under the law the impairment must have existed for at least six months before benefits are payable, "write backs" are sent for current findings and prognosis.

In diseases of the musculo skeletal system information as to the residual functional capacity is most important. A complete description of limitations in walking, standing, lifting or sitting, may establish proof that the patient is unable to do his usual work or any other vocation for which he could be reasonably trained.

Information furnished in a degenerative arthritis case may reveal the following, "Diagnosis: Advanced degenerative arthritis. Progressive low back pain. Poor response to therapy. X-rays show advanced degenerative arthritis, probably due to an old slipped left femoral epiphysis. Subtrochanteric osteomy planned to relieve pain." To the reporting physician this may appear to be adequate for determination purposes, however, information describing specific limitations in functional capacity are lacking. A "write-back" may produce more findings such as, "(1) marked loss of internal and external rotation and abduction of left hip, (2) right hip has three quarters motion, (3) left hip flexion 45 degrees, (4) one inch shortening of left lower extremity, (5) two inch atrophy of left thigh and one inch atrophy of left calf. Pain is present even while sedentary and there is relief of pain only when

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lying down. Any work requiring walking, standing, lifting or sitting, is not feasible."

In the field encompassing the neuro-psychiatric conditions, mental deficiencies and personality disorders, "write-backs" to the family physician are less frequent. When medical and hospital reports are incomplete for determination purposes, the problem is ordinarily best resolved by the purchase of the appropriate consultative examination.

Because every person applying for social security disability benefits is assessed for rehabilitation potential, medical reports also help serve this important function.

Mer/29

Triparanol (MER/29—Merrell) is a new drug promoted as the first safe agent to inhibit body-produced cholesterol. It is offered for use in hypercholesterolemia, coronary artery disease and generalized atherosclerosis. MER/29 is structurally similar to chlorotrianisene, a synthetic estrogen, but it has the unique property of partially blocking the synthesis of cholesterol from its precursor sterol, 24-dehydrocholesterol (desmosterol). Though there is no clear evidence that MER/29 can reverse the deposition of cholesterol or other lipids in atherosclerotic arteries in man, the drug can reduce hypercholesterolemia in many patients.

It has never been established, however, that reduction of blood cholesterol levels prevents coronary artery disease or generalized atherosclerosis, or that it improves the prognosis in these disorders. Nevertheless, the well-established association between abnormal lipid metabolism and clinical atherosclerosis has convinced many physicians of the desirability of reducing blood cholesterol levels in patients with hypercholesterolemia, with clinical signs or symptoms of atherosclerotic disease, or with a bad family history of coronary disease.

Methods of Reduction—Various means of reducing blood cholesterol levels have been used. Dietary measures have included both fat-free diets, and diets in which unsaturated fats (such as corn oil) make up about 75 per cent of the total fat intake. These measures are effective but difficult to follow. A variety of drugs have been used, including estrogenic hormones, thyroid or thyroxine analogues, nicotinic acid, beta-sitosterols, and a number of different combinations of concentrates of unsaturated fatty acids in oils. While these drugs are often effective, side effects, sometimes severe, are common.

How MER/29 will fit into this picture is still to be determined. The drug was introduced some months ago after considerable experimental work in animals and limited short-term clinical tests. Most of the published reports on the drug appear in the Proceedings of the Conference on MER/29 (*Progress in Cardiovascular Dis.,* 2:485, May 1960). (For a follow-up report on the experience of one group of participants in the conference see W. Hollander, et al., *JAMA, 174*:5, Sept. 3, 1960.) These reports indicate that the drug reduces blood cholesterol anywhere from 10 to 55 per cent in at least half of patients, with a mean reduction of about 25 per cent. Although improvement has been reported in some patients with insufficiency of the coronary and peripheral arteries who received MER/29, the only controlled trial (H. I. Russek, *Progress in Cardiovascular Dis.,* 2:578, 1960) produced no evidence of clinical improvement attributable to the drug in a series of 40 patients with angina.

An important question about the drug arises from the fact that 24-dehydrocholesterol, the precursor of cholesterol, accumulates in patients under treatment with MER/29 (D. Steinberg, et al., *ibid.,* p. 586). Dr. Steinberg and his associates ask: "What are the long-term biological effects of 24-dehydrocholesterol and to what extent is it atherogenic?" Until such questions are answered, claims for the safety of the drug cannot be fully accepted.

Changes in Levels—Another question, which applies to all methods of treatment of hypercholesterolemia, arises from the unreliability of cholesterol determinations as guides to effectiveness of a treatment program. Relatively few laboratories are able to determine cholesterol levels accurately. Furthermore, blood cholesterol fluctuates in patients with coronary artery disease (as well as in normal persons), and the fluctuations are wide and unpredictable. They are affected not only by diet, but also by emotional stress and physical activity. Weight reduction alone can depress the blood cholesterol, regardless of the cause of the elevation. Factors such as these indicate the need for controlled trials of cholesterol-reducing drugs, and make valid judgments difficult in the absence of such trials.

Immediate or short-term toxic and side effects with MER/29 were few and slight in the various reported studies. Nausea was uncommon except with large doses, but occasional skin rashes occurred. Although no clear-cut evidence of liver damage was shown, three of 28 patients showed an increase in bromosulfophthalein (BSP) retention and a slight increase in alkaline phosphatase (W. Hollander, et al., *ibid.,* p. 637). Some female patients showed cytological estrogenic effects of the drug, and in one elderly patient slight vaginal bleeding occurred for one day. R. G. Gould (*ibid.,* p. 492) suggested that tolerance to the drug might become a problem.

Reprinted from The Medical Letter on Drugs and Therapeutics, New York, N. Y.

How Does He Do It?

Jim is one of those men who seem to radiate youth and vigor regardless of age . . . and regardless of heavy responsibilities. Friends who ask how he does it learn that the secret is his willingness to delegate some of his responsibilities . . . personal as well as business.

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Clinical Medicine

Cardiopulmonary Function Tests

Frank D. Gray, Jr., m.d.
New Haven

Laboratory tests usually appear esoteric when they are new but become commonplace after they have been in use for some time. Cardiopulmonary function tests, although well established, may still seem esoteric because there appears to be an endless variety from which to choose and considerable confusion exists about their proper use.

This situation is analogous to liver function testing in which a battery of tests is used to examine the various specific functions of the liver.

Cardiopulmonary function tests may not provide a clinical diagnosis in every case, but they always increase our understanding of the physiological basis for a patient's cardiopulmonary symptoms. They are also useful in observing the response to treatment or for evaluating a patient's ability to withstand stress, such as work or surgery.

Cardiopulmonary function may be divided into ventilation which has to do with the movement of air in and out of the lung, perfusion or the movement of blood through the alveolar capillaries, and respiratory gas exchange across the alveolar capillary membrane. There are specific ways of estimating the integrity of these functions and the influence on them of specific diseases is pathognomonic.

Ventilation is a function of the volumes of the lung compartments (vital capacity, residual volume, etc.); the dynamic action of the chest cage bellows (maximal breathing capacity); patentcy of the air ways (timed vital capacity); and the distribution of inspired gas within the lung (intrapulmonary gas mixing index). Perfusion is influenced by the character of the pulmonary capillary bed; the patentcy of pulmonary arteries; and the cardiac output. Gas exchange is modified by both ventilation and perfusion, as well as the ratio of ventilation to perfusion, but the thickness and character of the capillary membrane is the most prominent factor regulating the diffusion of gas across the alveolo-capillary wall.

Vital capacity, timed vital capacity, residual volume, maximal breathing capacity, intrapulmonary distribution index, and lung compliance are some of the tests used to estimate ventilation. Arterial blood oxygen studies including the alveolar-arterial oxygen tension gradient, blood carbon dioxide, pH, and electrolyte studies, and lung diffusing capacity are measures of respiratory gas exchange. Perfusion can only be estimated indirectly by using data from ventilatory studies and gas exchange studies.

Asthma and emphysema affect ventilation chiefly, although in severe emphysema, gas distribution and diffusion, and blood perfusion are impaired. Pulmonary fibrosis, especially interstitial fibrosis and granulomatosis such as sarcoidosis affect the transfer of respiratory gas across the alveolar-capillary membrane. Primary pulmonary vascular disease and pulmonary embolism impair perfusion, although the latter also impairs gas diffusion from alveoli into the capillary blood.

The table shows the value of cardiopulmonary function tests in elucidating the dysfunction of two patients who, although resembling one another clinically, were actually quite different and required different treatment. Had the crucial treatment in these two patients been reversed, both would very likely have died. The correct diagnosis

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could only be made accurately by the tests listed, although there were clues in the clinical histories. These are examples of situations which, although not common, occur frequently enough to warrant some understanding by every physician of the use of cardiopulmonary function tests.

TABLE I. SHOWING USE OF CARDIOPULMONARY FUNCTION TESTS IN DIFFERENTIAL DIAGNOSIS.

	PATIENT J. M.	PATIENT D. C.
Clinical Picture on Admission	Extreme dyspnea Cyanosis Somnolence Productive cough Depressed ventilation Vasomotor collapse	Extreme dyspnea Cyanosis Somnolence Productive cough Depressed ventilation Vasomotor collapse
Clinical History	Gradual increase in cough and dyspnea over the years.	Rapid increase in dyspnea. Episodes of dizziness and actual syncope.
E C G.	R V H	R V H
Chest X-ray	Fibrosis, emphysema	Fibrosis, emphysema
Laboratory Data:		
RV/TLC	64%	40%
$p\ CO_2$	90 mm.Hg	58 mm.Hg
pH	7.19	7.30
O_2 SAT.	81% 100%	49% 96%
Aa GRAD.	5 mm.Hg	54 mm.Hg
ALV. VENT.	2.0 L./min.	2.2 L./min.
Dead Space	345 ml.	235 ml.
Physiological Evaluation	Hypoventilation	Alveolar-capillary block
Diagnosis	Bronchitis, emphysema, early CO_2 narcosis.	Recurrent multiple pulmonary embolism, moderate emphysema.
Crucial Treatment	Mechanical Respirator (O_2 dangerous)	Oxygen

Legend for Lab. Data: RV/TLC, ratio of residual volume to total lung capacity, normal under 30%; pCO_2, arterial CO_2 tension, normal 40-45 mm.Hg; O_2 SAT. arterial oxygen saturation, normal 95% reaching 100% on breathing pure O_2; Aa gradient, alveolar-arterial oxygen pressure difference, normal 5 mm.Hg; ALV. VENT., ventilation of alveolar spaces, normal 4.0 L./min.; Dead space, physiological dead space (ventilated but not perfused), normal 150 ml.

Cough Remedies

Over 600 ethical and over-the-counter cough remedies are listed in drug trade manuals. Most are shotgun mixtures containing varying — and often inadequate—concentrations of "antitussives" (cough-center depressants), expectorant salts, antihistamines, bronchodilators, and other drugs traditionally employed in cough mixtures. Whatever the mechanism of the cough disturbance, some pellets from the shotgun, it is hoped, will reach the target.

Cough is considered a protective reflex which can often be disregarded, but when the cough interferes with sleep or with eating, or causes vomiting, pain, dyspnea or heart strain, treatment is called for. Cough is always a symptom, however, and rational treatment is possible only when the cause has been determined.

SOME SPECIFIC MEASURES—Treatment of cough should, if possible, start with measures aimed at the underlying disease. An appropriate antibacterial agent is the best cough remedy when the cough is due to a bacterial infection of the respiratory tract. Diuretics and digitalis are the most effective drugs for the relief of cough due to heart failure. The control of environmental factors which aggravate a cough, such as tobacco smoke or excessively dry indoor air, is often more effective than an antitussive drug. Where a benign cough provokes excessive anxiety or is a conversion symptom of hysteria, an appropriate sedative and psychologic support will be more effective than any cough remedy.

When specific therapy is not possible or is ineffective, cough-relieving measures may be necessary. Disorders of the upper-respiratory tract such as the common cold are usually self-limited; if anything more than reassurance is needed, steam inhalation may be helpful, and non-medicated candy drops may be useful for their demulcent effect; there is no need for, and it is safer not to prescribe, medicated lozenges and troches.

In disorders arising below the epiglottis, cough remedies—oral, parenteral, inhalant or aerosol—are often required. For the cough aassociated with bronchospasm (as in asthma, chronic broncitis and pulmonary emphysema) a broncho-dilating drug such as ephedrine is the first choice. An expectorant drug such sa potassium iodide may also be useful in liquefying thick secretions. Other traditional expectorants include the ammonium salts, antimony potassium tartrate, terpin hydrate, guaiacol, creosote, squill, and ipecac. All of these drugs reflexly augment the output of respiratory-tract fluid. To be effective, they must be taken in doses approaching maximum tolerance. Steam inhalation and forcing of fluids are sometimes more effective in loosening tenacious sputum or in relieving a dry cough than the use of expectorant drugs.

Reprinted from the Medical Letter on Drugs and Therapeutics, New York ,N. Y.

Clinical Pathological Conference

YALE UNIVERSITY SCHOOL OF MEDICINE

MAY 20, 1961

Participants:

MURRAY BRODOFF, M.D.
IRA S. GOLDENBERG, M.D.
SAUL S. MILLES, M.D.
ALBERT DIBBINS, M.D.
JOHN R. MITCHELL, M.D.

SURGICAL GRAND ROUNDS

Dr. Goldenberg: One of the more perplexing problems which faces both surgeon and internist is the patient with a gastric ulcer. The gastric ulcer is generally an x-ray finding in a patient with symptoms suggesting an upper gastro-intestinal problem. The main problem is to differentiate benign from malignant disease. Obviously, the therapeutic approach in each of these is quite different. This morning a patient will be presented whose history is typical of the problem presented by patients with gastric ulcer. Dr. Saul Milles and Dr. Murray Brodoff of the Department of Medicine, who have particular interest in some of the more specialized diagnostic techniques to aid the surgeon, will discuss these techniques and the part that they play in the evaluation of the patient with gastric ulcer. Whereas in times gone by the major diagnostic procedure was surgical intervention, now we are able to gain significantly more information through these various diagnostic techniques prior to laparotomy. Dr. Albert Dibbins will present the case history.

Dr. Dibbins: The patient is a 51-year-old white male, a short order cook and handy man by vocation, who was hospitalized in December, 1959, because of a five pound weight loss, anorexia, and an increase in his usually present cough. On physical examination, he was found to have rales and rhonchi over the left upper lobe. Admission chest film showed a left upper lobe infiltrate with some cavitation present. Sputum smear was Gaffky 4 and sputum culture was positive for acid fast bacilli. He was begun on therapy with INH and PAS plus pyridoxine. This treatment was continued for six months and because of persistent cavitation, left upper lobectomy, and wedge resection of the superior segment of the left lower lobe were carried out on August 5, 1960. He had a smooth postoperative course, but in November, 1960 began to complain of upper abdominal distress relieved by the ingestion of food or milk. An upper GI series performed at that time demonstrated an antral deformity of questionable nature. Conservative therapy was embarked upon but in spite of a regimen consisting of a bland diet, antacids, and anti-spasmodics, the patient's symptoms persisted. He continued to smoke and drink coffee. His pain progressed to the point where it would occasionally awaken him at night. A second upper GI series was performed in March, 1961 and this demonstrated a large ulcer on the lesser curvature aspect of the stomach. Gastroscopy was carried out and the ulcer was not visualized. Gastric cytology was negative. Gastric analysis demonstrated histamine anacidity on two occasions and three degrees of free acid after histamine on the third occasion. A more strict ulcer regimen was embarked upon but another GI series in May of 1961 demonstrated a persistent large ulceration on the lesser curvature of the stomach. Because of the presistent ulceration, exploratory laparotomy was carried out on May 10, 1961 at which time the lesser curvature of the stomach was found to be adherent to the diaphragm by what appeared to be an inflammatory process. A biopsy was negative for carcinoma and a standard subtotal gastrectomy was carried out. Histologic examination of the resected ulcer revealed it to be benign. He has had a smooth postoperative course.

Dr. Goldenberg: Dr. Mitchell, will you please show the x-rays at this time.

Dr. Mitchell: First I will present his chest films briefly. Here we see a pretreatment film with extensive pulmonary tuberculosis with infiltration and cavitation of the left upper lobe. His interval chest films prior to thoracotomy show persistent cavitation and a postoperative chest film shows good expansion of the remaining lower lobe without evidence of persistent disease. The upper GI series demonstrates a large ulcer in the mid portion of the lesser curvature of the stomach and follow-up films of the stomach fail to show evidence of healing. The question always arises as to whether gastric ulcerations represent benign or malignant processes. This patient has a coiled stomach, a narrow antrum, and a deformed bulb. The deformed bulb is evidence of old inflammatory disease, and in patients with duodenal deformity of long standing, the possibility of a gastric ulceration being malignant must be considered. If the duodenal disease is of recent onset and acute in appearance, then one would tend to think that the gastric ulcer might be benign. Radiographically, one may sometimes distinguish between a benign and a malignant ulcer. Multiple gastric ulcers are usually benign. In times past, the size of the ulcer has been used as a criterion of malignancy, the larger ulcers being considered malignant. We have found through experience that this point is of little help, since huge ulcers may be benign. We have also learned that greater curvature ulcers are not always malignant, although a larger percentage of ulcers in this location are malignant than those occurring on the lesser curvature. The same might be said of ulcers located in the antral region. The ulcer that we see here is high up on the lesser curvature and radiographically appears benign. However, it failed to heal on good medical management and there is no way to be certain that it is not malignant. A benign ulcer should heal quickly when the patient is on a good medical regimen. So we see that size and location of the ulcer are of little help. The appearance of the local changes around the ulcer bed are of great importance radiographically. In a benign ulcer, the ulcer bed is usually surounded by edema and in a malignant ulcer by tumor tissue. The ulcers in tumor usually have sharp margins and cannot be compressed well. The edematous edges of a benign ulcer are generally compressible and this can be demonstrated on the roentgenograms. Here we see folds that radiate directly into the ulcer itself. In a malignant ulcer, the folds usually stop abruptly. The ulcer crater in a malignant ulcer may frequently be eccentric whereas the crater in a benign ulcer is usually central in location. Benign ulcers not infrequently extend beyond the confines of the stomach wall whereas malignant ones give the appearanec of ulceration within a mass intralumenally. In conclusion, it might be said that benign and malignant ulcers sometimes cannot be differentiated radiologically. However, I think this is a benign gastric ulcer. The above criteria will generally be useful.

Dr. Goldenberg: Thank you Dr. Mitchell. I think it is very clear from Dr. Mitchell's description of the films here and of the radiologic problems in general that we need further help in order to more accurately differentiate benign from malignant gastric ulcers. In recent years endoscopy has become increasingly important in this respect. Dr. Murray Brodoff will discuss briefly some of the endoscopic techniques.

Dr. Brodoff: Before going into the uses of the gastroscope, I thought it might be a good idea to explain the instrument itself to you. The gastroscope is a 78 cm. long, 12 mm. wide tube which is divided into two sections, a distal, flexible section and a proximal rigid section. The distal section contains a light source, an objective, which projects the mucosal image, and 40 to 50 lenses which are in series and which project the image along the scope. This allows the operator to manipulate the scope in different directions without mutilating the image. In the rigid proximal section we have the eye piece and an apparatus for insufflating air into the stomach so that we may visualize the lesions more accurately by distending the gastric folds. In preparation for endoscopy, we keep the patient without food or water by mouth for about ten hours. As the patient leaves the floor to come to the operating room, he is given Demerol and atropine and in the operating room is given a topical anesthetic to gargle, generally Pyribenzamine, which seems to work very nicely. The instrument is passed blindly with the patient lying in the left lateral decubitus position, and in this manner we can usually see the major portion of the fundus, cardia, the lesser curvature of the stomach and the antrum. There are, however, four areas in the stomach which are relatively blind. They are the small, but very definite segment of the posterior wall of the stomach, which is blind because in the passage of the instrument along the axis of the esophagus which lies posteriorly, the light source falls upon the posterior wall of the stomach and there is not the necessary 2 cm. of distance between the light source and the gastric wall for an image to be formed. The other important portion of the stomach not well visalized is the lesser curvature portion of the antrum. This is because the angulus of the stomach, which gastroscopically appears as a veil, hangs over the lesser curvature aspect of the antrum and blocks it from view. Occasionally we can circumvent this difficulty by watching peristaltic waves which start at the level of the angulus and which efface the angulus, thereby allowing the antrum to be visualized. For optical reasons, the superoir portion of the gastric fundus is frequently not observed satisfactorily.

The most important contra-indication to gastroscopy is an uncooperative, combative patient. This can sometimes be avoided by careful premedication and good anesthesia as well as an under-

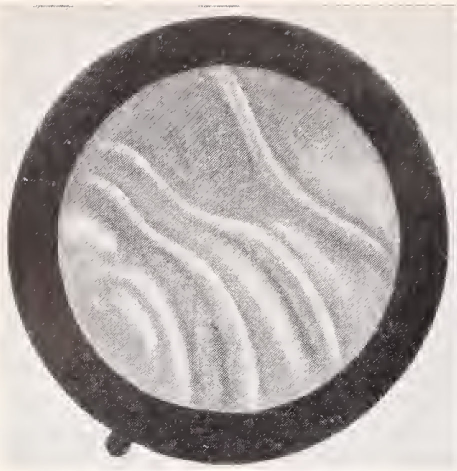

Figure 1

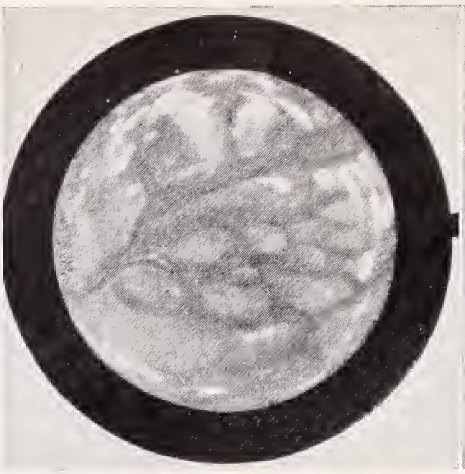

Figure 2

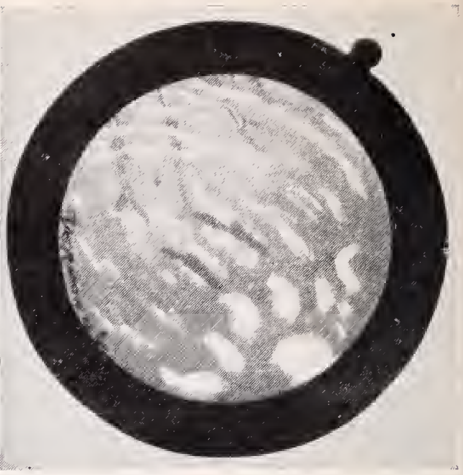

Figure 3

standing doctor-patient relationship. A second contra-indication is an obstructing esophageal lesion such as carcinoma or stricture. Patients who have known cervical, esophageal diverticula are not gastroscoped because in the passage of the instrument, the diverticulum may be entered with resultant perforation. A relative contra-indication in the experience of some, although our experience does not bear this out, is the presence of esophageal varices. The fear here, of course, is the instigation of bleeding. We have done well over a 100 gastroscopies in patients with cirrhosis and varices and have never encountered fresh bleeding. A second relative contra-indication in our minds, although this is not universally agreed upon, is the presence of fresh blood in the stomach itself. We have found that blood in the stomach obscures the view through the gastroscope and thereby significantly lowers the diagnostic accuracy of the procedure. Dangers of gastroscopy are relatively few, since the distal portion of the instrument is soft and flexible. For this reason, perforation rarely occurs. We have done approximately a 1,000 gastroscopies in the last four to five years and have yet to encounter a perforation, although this certainly will sometimes occur.

It is important to remember that gastroscopy is not an examination used in competition with x-ray but rather should complement it. I think even the most ardent gastroscopist would feel that x-ray should be the initial procedure and is certainly the more important examination. There are, however, many circumstances in which gastroscopy can give us additional important information. A recent example is a patient with upper GI bleeding in whom the GI series was interpreted as being normal, but at gastroscopy several gastric polyps were visualized. This man was operated on and his antrum was found to contain many polyps, one of which was malignant. This is certainly an instance where gastroscopy complemented x-ray examination in the diagnostic work-up. I think gastroscopy is also important in antral lesions since this area is the enigma of most radiologists. Antral gastritis may be easily confused with malignancy and a healed antral ulcer may appear to be malignant on x-ray. Antral spasm may prevent accurate x-rays of the area. By careful gastroscopy and visualization of the antrum, an antral lesion may be ruled out in the presence of a questionable x-ray picture. We have had several such instances recently in our experience.

The combination of x-ray, gastroscopy, and cytology gives us a fairly accurate diagnostic picture in gastric ulcer and unnecessary surgery may frequently be avoided. Gastroscopically, a benign ulcer usually has very sharp edges, very squared-off sides, lack of infiltration around the sides of the ulceration, no nodules on the sides of the ulceration, and a clean, gray-to-white base. There should also be no nodules in the base or if they are present in the benign situation, they are generally small and uniform in size. Additional lesions which may be diagnosed gastroscopically are adenomas, telangiectasia, which eludes the radiologist, and foreign bodies. Gastroscopy is also quite accurate in the diagnosis of the various gastritides. We have several examples of gastroscopic views of the stomach under different conditions. Here we see a normal stomach (Fig. 1). You will note the smooth folds with some highlighting and the orange-red coloration. This gives an example of atrophic gastritis (Fig. 2). You see the pale mucosa with the prominent underlying blood vessels. You never see blood vessels in the normal stomach wall by gastroscopy. The mucosa is pale and thin and some exudate is present. Here is a combined picture of chronic superficial gastritis and atrophic gastritis (Fig. 3). The area of chronic superficial gastritis is characterized by some hemorrhage and exudate and we feel that these

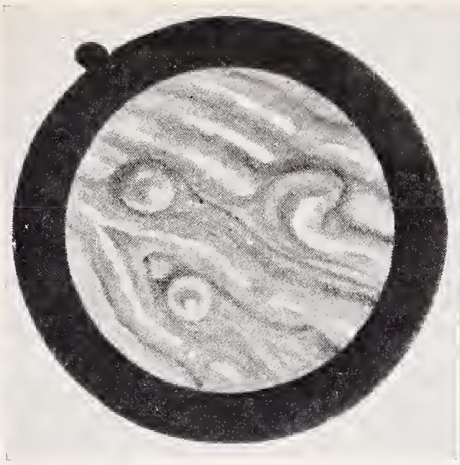

Figure 4

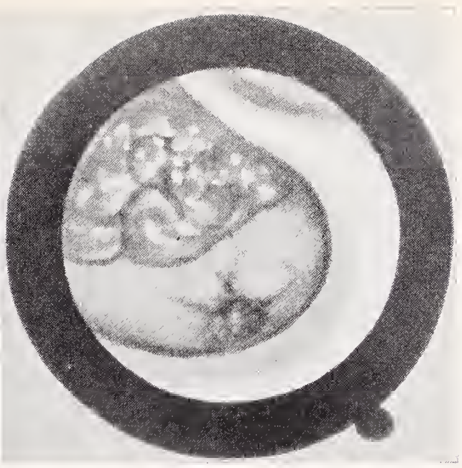

Figure 5

lesions can be symptomatic. At the time of gastroscopy we have been able to duplicate the patient's original symptoms by insufflation of the stomach with air in people with chronic superficial gastritis. This is a picture of a normal stomach with a few small polyps (Fig. 4). You will notice that they are the same color as the surrounding gastric mucosa. Finally, here is a picture of an antral carcinoma (Fig. 5). Here you see the pylorus and proximal to it an irregularly nodular, large mass. You will note the exudate on the surface of the lesion. In the differentiation of benign and malignant gastric ulcer, Schindler and Benedict claim an 85 per cent accuracy when using endoscopy with x-ray. With the addition of cytology, this accuracy can probably be pushed up into the 90 per cent plus range. In conclusion, I might say that this instrument has a lot to offer, but it also has a lot of drawbacks. We are in the process of developing a fiberscope which is excellent optically speaking and will, in all likelihood, eventually replace this standard gastroscope. With it, the blind areas may be reached without much difficulty.

Dr. Goldenberg: Thank you Dr. Brodoff. Another recent development in which we gain a great deal of help is gastric cytology. Dr. Milles will now say a few words about the value of gastric cytology.

Dr. Milles: I would like to first say a few words about the approach of the gastro-enterologic internist in the patient with a gastric ulceration in which the underlying nature of the lesion is in doubt. Usually, the ulcerating carcinoma is so typically malignant that a benign ulcer does not come into consideration. However, there is a large group in which malignancy may simulate benign ulcer and this is the area in which the diagnostic criteria are relative rather than absolute. I will also comment on the lesion in which the only indication for surgery is fear of malignancy, that is, in which there have been no complications such as bleeding, obstruction, or intractability. In the differential diagnosis of benign and malignant ulcers, we tend now to ignore factors in which previous importance has been placed, such as age of the patient, duration of the symptoms, weight loss, persistent occult blood in the stool, periodicity of symptoms, etc.

The first procedure that we think is of great value is gastric analysis. It is the easiest procedure to do and should be the first one performed. We believe that the diagnosis of the benign gastric ulcer cannot be made with assurance in the presence of persistent histamine-fast anacidity. We feel that any patient who has a demonstrated gastric ulceration and in whom there is persistent histamine-fast anacidity there is a great suspicion of malignancy and surgery should be recommended without delay. A word of caution about the anacidity. We strongly stress the use of the pH meter rather than Topfer's reagent. It is important to demonstrate pH anacidity since there is a range of acid which will not be shown by the Topfer's reagent which changes color at pH 3.5. The use of blood pepsin determinations has a similar value to that of gastric analysis. A persistent low blood pepsin suggestive of achylia is valuable, but elevated levels have no significance in helping us differentiate benign from malignant disease.

I would like to briefly mention the Wood's tube biopsy technique. We have been asked on a number of occasions, why if a gastric ulcer is present, we do not go ahead and biopsy it. The Wood's tube was developed in order to demonstrate or study generalized gastric lesions. It is a flexible tube which is passed blindly into the stomach and the biopsy is taken by suction without the advantage of direct visualization. You can imagine how difficult it would be to pick up the edge of a carcinoma or a small ulcer in this manner. As a matter of fact, in some instances under fluoroscopic control, we have been able to directly biopsy a carcinoma, but this is a pure fishing expedition and you are very lucky when you do get it.

I think the major important diagnostic aid is cytology. This is a technique which has come into prominence in the last 15 years. The use of gastric lavage in the diagnosis of malignancy goes back to 1909 when Marini examined unstained cells obtained from meticulous lavage of the stomach and was able to diagnose carcinoma in 32 out of 37 cases. However, this method fell into disuse because of many problems, and it was not until 1941 that Papanicolaou again revived interest in this procedure. I think that the early discouraging reports in the use of this technique were due to the lack of techniques to minimize cell digestion by acid and enzymes and also to eliminate contamination by food and other debris. For this reason gastric cytology as a diagnostic procedure has developed more slowly than it's counterparts in gynecologic and thoracic work. The recent development of extremely simple and effective methods of preparing and fixing smears plus increasing skill by the cytologist in interpreting normal and abnormal smears has increased the value of this procedure, so that recent efforts compare very favorably with x-ray and gastroscopy. Actually, the stomach is rather an ideal organ for the study of cytology. It is easily reached, can be adequately washed, ample cellular material is usually available, and most important, it can be done repeatedly with relatively little inconvenience to the patient.

The fundamental characteristics of carcinoma cells which makes cytology of the stomach possible is their loss of adherence to one another and to their parent tissues as demonstrated by microdissection studies. These show that carcinoma cells need much less force to separate them from one another than normal cells and that normal gastric mucosa tends to resist this type of exfoliation. Now, a word about the evaluation of cytologic reports. Our most common failure to obtain malignant cells where there is carcinoma, the so-called false negative, is due to three reasons. One, the tumor may be submucosal in location and therefore never shed cells. Secondly and perhaps more commonly, there may be a thick tenacious exudate covering the surface of the lesion, or there may be a large overlay of necrotic material in a deep penetrating ulceration. Third, and also important, is the human error during examination by the cytologist. Malignant cells may be bypassed or he may fail to recognize a typical malignant cell when they are visualized. We try and keep this down to a minimum, of course. We feel that positive reports always carry much greater weight than negative reports in that these reports may confirm the presence of malignant disease that is strongly suspected or already proved or may actually help in a border-line case. On occasion we may actually make a diagnosis of carcinoma where none was suspected. We feel that a negative report has increasingly important significance, particularly where one has confidence in the cytologist. We feel that with a negative report and the absence of any other indication for surgery, operation for fear of cancer alone is not tenable, and that the patient certainly deserves a therapeutic trial of medical management.

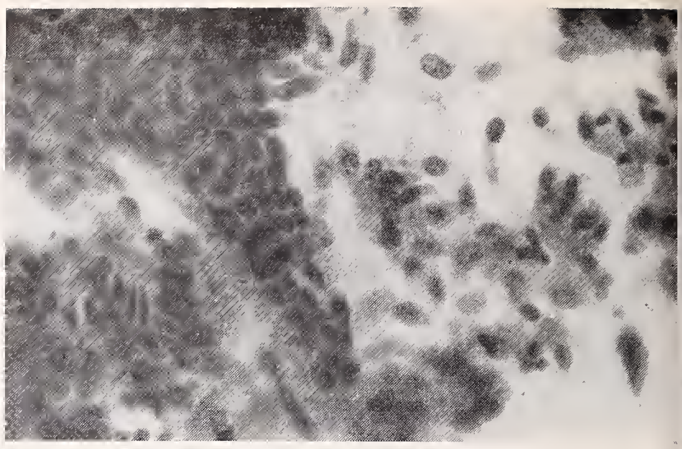

Figure 6

When cytology was first developed at many institutions, the reports were given in the old Papinicolou classification of 1 through 5. We try to stay away from this method. We either report our cytologies as positive or negative, or unsatisfactory. We feel that such a term as "suggestive or malignancy but not diagnostic thereof" or "suspicious" contribute very little to the clinician, when he is trying to make a diagnosis, and tend to confuse the issue.

A most important aspect in cytology is the technique of collecting the material. Perhaps the most important person in cytology is the cyto-technician. This is not necessarily a physician, and because of the simple methods we now use does not have to be one. Experience has shown that the most efficient and accurate cytology is done when one individual collects specimens, smears them, stains them, and then reviews the slides. For this reason, a skilled, responsible technician is required. This technician must give meticulous attention to details, because one slip in technique or any faulty or careless procedure can result in the loss of a few malignant cells and a false negative examination. This method also gives the cyto-technician clinical contact with the patient, which we feel is important. The technician should know the indications for the examination and what we are seeking. This is particularly so because the technician has to spend several hours scanning slides (15 to 30 minutes for each slide). This is a tedious examination, and we feel that the motivation gained by personal

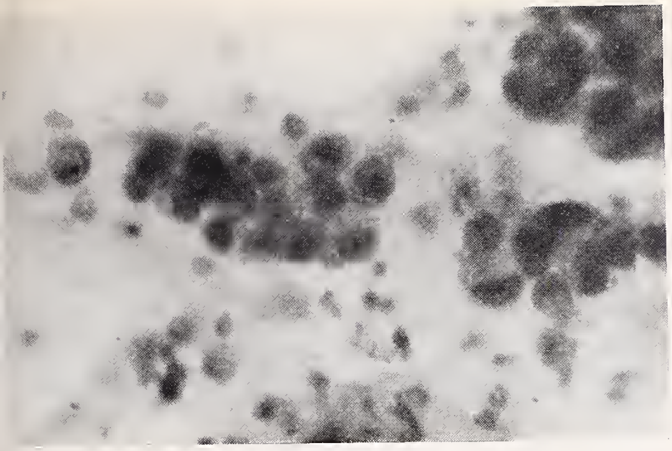

Figure 7

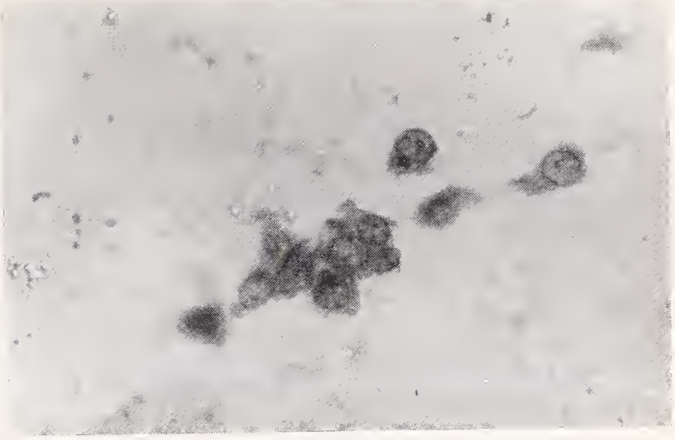

Figure 8

contact with the patient helps the technician in her work. For this reason, too, we feel that cytology at this time is not applicable for mass screening techniques because of the amount of time that it requires.

Our goal in cytology is to obtain sufficient cellular material of good quantity and quality, as this is most crucial. Once one gets this type of specimen, the recognition of malignant cells should not be difficult.

A word about preliminary preparation of the patient—we try to get as much food and debris out of the patient's stomach as possible. The presence of food or debris makes accurate studies impossible. In an unobstructed patient, we use an overnight fast. If the patient has a history of obstruction, a liquid diet for several days plus an overnight fast is indicated. Gelusil and Maalox should be discontinued several days prior to the examination because these materials tend to contaminate the specimen. One milligram of atropine is administered subcutaneously prior to the introduction of the tube. The tube is passed through the mouth in order to keep from contaminating the specimen with nasal ciliated columnar cells. A vigorous gastric lavage is carried out, and perhaps most important, the aspirated material is placed in iced tubes, centrifuged, smeared, and fixed at the patient's bedside. We feel that this definitely contributes to the success of the determination. We have not found the various aids, such as brushes, balloons, etc. desirable in this examination. The use of mucolytic agents has also been discredited.

Here are seen examples of cytologic specimens. This is a group of easily identified normal gastric columnar cells (Fig. 6). All the nuclei are of characteristically the same size and the nuclear cytoplasmic ratio is relatively constant. The cytoplasm tends to be well preserved. Malignant cells on the other hand show certain characteristics which help in identifying them (Fig. 7). They are much larger than normal cells—up to a four fold increase in size. The nuclei are disproportionately increased in size and may fill most of the cell. The nuclei may be irregular in size and shape and show prominent clumping of nucleoli. This is a group of atypical cells from the edge of a gastric ulcer which will sometimes confuse the cytologist, but which have certain characteristics which will enable the skilled cytologist to recognize them as non-malignant, but atypical cells (Fig. 8). Often times the differentiation is rather difficult because these immature,

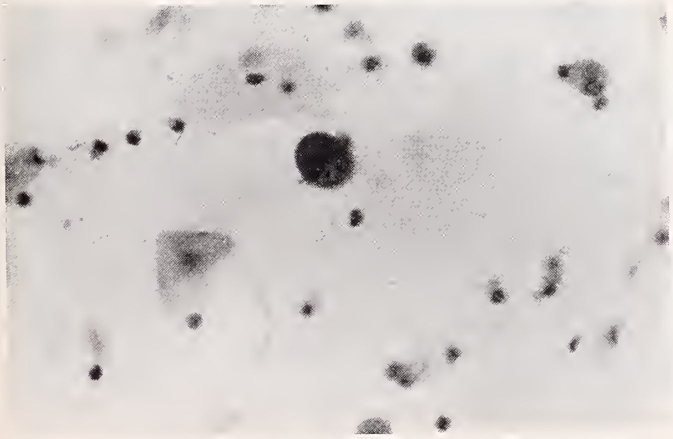

Figure 9

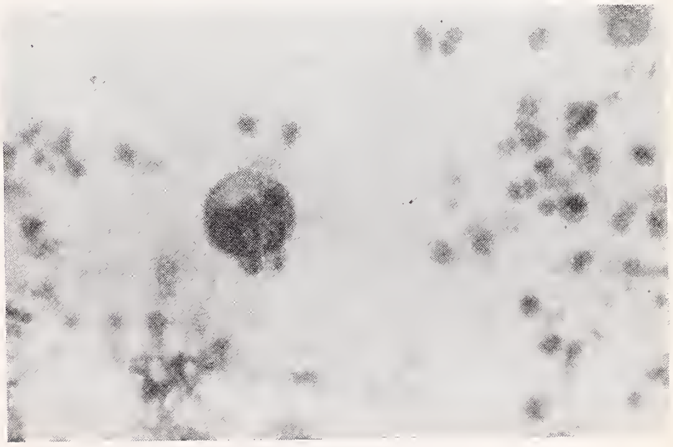

Figure 10

rapidly growing cells from the edge of a benign ulcer will closely mimic a tumor. This is a hyperchromatic, practically all-nucleus type of malignant cell seen in the midst of a group of squamous cells from the esophagus and buccal cavity, and some small gastric columnar cells (Fig. 9). In this malignant cell, we can see multi-lobulation of the nucleus, and atypical division with binucleation on a background of fairly normal cells (Fig. 10).

Given a gastric ulcer patient with acid in his gastric secretions, and indeterminate x-ray, negative gastroscopy, and a negative gastric cytology, we feel that a trial of conservative management is indicated. By that we mean that the patient should remain in the hospital—we stress this very strongly. We feel the patient should be hospitalized for two weeks, vigorously treated with a bland diet, antacids, and antispasmodics and then re-x-rayed at the end of two weeks. If there is evidence of healing, perhaps greater than 50 per cent, we feel justified in discharging the patient and re-x-raying him again in six weeks. If there is no healing, we feel that this is an indication for surgery. If we are able to demonstrate by x-ray and gastroscopy complete healing of the ulcer and return of the gastric mucosa to normal, we feel that this is conclusive clinical evidence of the benign nature of an ulcer.

Dr. Goldenberg: A great deal of progress has been made in recent years to help the physician solve the problem of diagnosis of the gastric lesion. You have learned some of the details to-day of the endoscopic techniques and examination of cytology. It is obvious that even with these aids, many patients will come to operation without a diagnosis, but this number is fewer to-day than in decades past. More refined pre-operative studies will probably be developed in the future to help resolve the common dilemma of the gastric lesion. Thank you.

Illustrations of Gastroscopy used with permission of Schindler, R.: Gastroscopy: The Endoscopic Study of Gastric Pathology, 2nd Edition, The University of Chicago Press, Chicago, 1950 (copyright).

Logic cannot guarantee useful or even true propositions dealing with matters of fact, any more than the cutter will issue a guarantee with the surgeons knife he manufactures that operations performed with it will be successful. However, in offering tribute to the great surgeon we must not fail to give proper due to the quality of the knife he wields. So a logical method which refines and perfects intellectual tools can never be a substitute for the great masters who wield them: none the less it is true that perfect tools are a part of the necessary conditions for mastery—M. R. Cohen and E. Nagel; *Introduction To Logic And The Scientific Method.*

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House of Delegates

December 7, 1962

REPORTS OF OFFICERS AND OTHERS

REPORT OF THE CHAIRMAN

MR. SPEAKER, MR. PRESIDENT, AND MEMBERS OF THE HOUSE OF DELEGATES:

Since the last meeting of this House in April, the Council has held five meetings, with the usual high percentage of attendance of all of its members. At the first meeting in May, the election of the chairman and the appointment of the sub-committees was accomplished. At every meeting much routine business has been accomplished, the details of which have appeared in CONNECTICUT MEDICINE.

The most important and the busiest Sub-committee has been that on the Revision of the Bylaws, whose members are William J. Murray, Jr., New London, Chairman; Jachin B. Davis, New Haven; Gerard M. Chartier, Danielson; Samuel B. Rentsch, Derby; Michael R. Scully, Bridgeport; Phillip M. Cornwell, Hartford. You may recall that New Haven County, particularly, submitted a considerable number of proposed changes in the revised Bylaws, as presented at the meeting in April, that some of the other counties also had proposals and changes, and that it was finally voted to refer the matter back to the Council. This Sub-committee has met many times and has discussed and considered all of the proposals which were submitted to it. At the October meeting of the Council, a revised draft was presented, incorporating most, if not all, of these other proposals. With a few minor amendments, the revision was adopted by the Council and is being presented to you today for action. These men have done a very thorough job and deserve your thanks for many hours spent on this project.

The Council's Sub-committee on Opinion Survey has been attempting to summarize the findings as compiled from the questionnaires, which were returned a year ago, in a form that would be suitable for publication in CONNECTICUT MEDICINE and in a form which will be meaningful for the entire membership of the Society.

The Society's Committee on Relative Value Study, under the chairmanship of Dr. Benjamin Thaw of Hartford, has continued its work. Dr. Thaw appeared before the Council in June and outlined the status of the project at that time. He also reported the valuable assistance, in compiling the systematizing the mass of detail, rendered by the firm of Rogers, Slade and Hill. In September, at the request of Dr. Thaw, the Council authorized sending Mr. Edlund of that firm to Chicago to attend the AMA Workshop on Techniques of Relative Value Study. He submitted a comprehensive report to both the Committee and the Council, and it is believed that this will be of great value in the completion of the project.

At the meeting of the Council in May, the Chairman was instructed to appoint a Committee of Past Presidents and other informed members to develop suggestions as to how the state medical organization can be made more effective in all its operations. After considerable delay, the following members consented to serve on this Committee:

Past Presidents:

Ralph T. Ogden, Hartford, Chairman
Oliver L. Stringfield, Stamford
Elwood C. Weise, Sr., Bridgeport
John N. Gallivan, Hartford
George H. Gildersleeve, Norwich

County Secretaries:

Morris A. Mancoll, Hartford
Hyman A. Levin, New Haven
Clifford E. Wilson, Norwich
Frank Lovallo, Lakeville
Herbert Levine, Middletown
Marjorie Purnell, Rockville

This Committee has held one meeting with apparently a very fruitful initial discussion. For immediate action they have recommended to the Council the appointment, again, of a Committee on Emergency Medical Service and, by vote of the Council, the Chairman was instructed to appoint this committee and designate its chairman. This will be done in the very near future. Their other recommendation for immediate consideration appears before you today in the form of a Resolution from the Council regarding the establishment of a Medical-Political Action Committee. Further suggestions of value are confidently expected from this Committee.

In October, Dr. John Shoukimas of Hartford was sent by the Council to attend a Medical Self-Help Training Program held in Brooklyn, New York under the auspices of the U. S. Public Health Service. As part of his report to the Council, he also recommended that a Committee on Emergency Medical Service be formed which would work with other interested State agencies and with the State Civil Defense Director.

As you all know, during the last session of the General Assembly, there were many bills of a medical nature in which the Society was keenly interested. Some of these passed, some failed of enactment. The Chairman would be remiss if he did not call to your attention the valiant work done by your State Legislative Committee, especially its Chairman, Dr. Kenneth Brandon, and most particularly that done by your President, Dr. Thomas Feeney. He, almost single-handedly, was able to convince the Legislative Committee handling the legislation for implementation of the Kerr-Miles Bill to draft and pass this in such form that payment to physicians will be included and that those who receive such aid will not automatically become wards of the State Welfare Department.

On the national scene, the Council appointed Dr. Clifford Mills of Norwalk as the official representative of our Society at the hearings held in Washington in July in regard to the Medical Care of the Aged under the Social Security System.

At the September meeting of the Council, a resolution from the Medical Society of Georgia was considered. This pertained to the subject of whether the AMA actually represents the point of view of the majority of the physicians of the country and has the support of the majority of the physicians of this country. The Council approved the intent of this Resolution and voted to send a copy to each of the eight County Medical Societies for consideration and action at the semi-annual meetings. I believe all eight County Associations passed this Resolution.

Throughout the year, many requests have been received from lay organizations and radio stations for physicians to participate in panel discussions or to be speakers on medical subjects. Realizing that these demands could not be met by only a few physicians from the State Society itself, the Council, as you recall, requested each County Association to establish a Speakers' Bureau of its own, to which requests from different counties could be referred. The Council also instructed the General Manager, in conjunction with the Director of Public Relations, to organize a Workshop for the assistance of those members who were willing to devote a little of their time to this very important subject. The General Manager tells me that the Workshop project is nearly ready to function but that, as of the date of the writing of this report, no one name of a physician from any county has been sent in as requested. I trust you will all return to your own counties and stimulate your Boards of Trustees or Executive Committee to get busy on this lest we fail in meeting adequately this demand of the public for information on these topics.

No report of the Chairman of the Council in recent years has been complete without discussion of some aspect of Connecticut Medical Service. I do not have any concrete facts or recommendations to make because, up to now, the Council has received no official communication from CMS nor a request for a meeting of the Liaison Committees to consider definite proposals. We have had some informal reports indicating that the Commissioner of Insurance is insisting that the service benefit levels of the Preferred Contract be materially increased. Apparently, some of the County Associations have likewise been receiving such informal reports because the Council, at its November meeting, received resolutions from both Fairfield and New Haven County Medical Associations in regard to this possible change in the service benefit levels. The Council voted to transmit these resolutions to the Board of Directors of CMS as information, and they were so transmitted under the date of November 22, 1961.

I believe I have covered, in this report, information regarding the major problems acted upon by the Council since your last meeting, and it is respectfully submitted.

Ralph L. Gilman, m.d.
Chairman

REPORT OF THE GENERAL MANAGER

In this, my seventh report to the House of Delegates since becoming the executive officer of the Society, once more I find it impossible to present you with a happy or reassuring message. Just once—just one time—during my service to our state medical organization, I would like to be able to bring you up to date only on such routine matters as whether that leak in the roof at St. Ronan Street had been repaired and if all of our thirty-three hundred members had paid their dues. In other words, it would be my wish to inform you that nothing could be finer, insofar as our professional world is concerned, and that what small problems we have are being taken care of without appreciable muss, fuss or strain. But today is not that time.

The first matter I wish to bring to your attention concerns the current legislative picture, locally and nationally. At state level, through the fine efforts of Tom Feeney and his committee, working together with responsible people from other health agencies, the insurance industry and a number of state legislators from both sides of the political fence, an outstanding program of Medical Assistance to the Aged was enacted by the General Assembly last Spring. Public Act No. 578 will become effective on April 15, 1962, and should more than adequately bridge any gap which may now exist between the roughly 15,000 older people presently protected by Old-Age Assistance and the many, many more thousands of over-65's who, through insurance, are already offering convincing evidence that they are self-supporting and have no need or desire to become medical pensioners of the Federal government.

Although the enactment of this worthy legislation has received very little public notice — not even today, which is six months later — it seems to me that the active participation of the Society in its drafting and our constructive efforts to assure its passage by the Assembly gives the lie to those who say with monotonous repetitiousness that "doctors are always against everything". Let the record show that we locally, and the American Medical Association nationally, gave support to many, many more bills than we opposed, and in numerous other instances gave freely of our professional advice without feeling it necessary to take a positive position.

In Washington, D.C., the House Committee on Ways and Means held hearings on yet another proposal to place medical care under the thumb of government. This time it was the administration-sponsored King-Anderson Bill, a less pretentious modification of the oft-rejected Forand Bill, and it is gratifying to know that for the time being, at least, the House Committee remains unconvinced that such a medical program for the aged is either necessary, from the standpoint of demonstrable need; desirable, from the standpoint of the present high quality of American medicine; or practical, from the standpoint of heaping another multi-billion dollar tax load on the already overburdened working man.

All in all, then, it appears that organized medicine has done a pretty good legislative job this past year. Our over-all accomplishments can, I believe, be considered a source of reasonable satisfaction to everyone who participated and a source of reasonable reassurance to the altogether too many others who did not. I sincerely hope, however, that not a single physician in the state will arrive at the completely erroneous conclusion that, at last, the time has come to relax and forget about these recurring threats to freedom in the practice of medicine. It seems quite likely that our further activities in this area will have to be strengthened, enlarged upon and made even more effective in waging successfully what has been called "the medical cold war."

In 1962 and thereafter, I believe it is extremely doubtful the present scope of legislative function granted to our Society by law will suffice to get this important job done. I am loath to say so, but it certainly appears that in the rather strange atmosphere which pervades our national life today, merely filing sound, carefully thought out statements in support of, or in opposition to, proposed legislation will no longer be nearly enough. I guess that what I am trying to say is that legislative activity, as we have known it, still retains its traditional form but that its substance is rapidy becoming fair game for power politics. Facts now tend to be largely discounted in favor of votes, in all too many cases, and as Rep. Thomas B. Curtis of Missouri recently observed: "When the executive, in order to get through his programs, seeks to undermine the confidence of the people in the representative system of government by appealing to (them) through propaganda, instead of through testimony (carefully heard and evaluated) at congressional hearings, the people should take immediate alarm." Cheers for Mr. Curtis! Truer words were never spoken, yet one wonders how many Americans are alarmed — or even casually concerned — about this course of events; this substitution of political promises for responsible legislative performance. I fear all too few.

No longer do lobbyists appear at hearings merely to file testimony pertinent to the matter at hand. Today, in increasing numbers, we find relatively insignificant public and organizational officials announcing with complete immodestry, and even less authority, that they "speak for the thirteen and one-half million citizens of Philadelphia", or that they have come from far away places to give the committee the single-unit views of "the seven hundred and fifty thousand hard-working members of the International Chocolate Dippers Union". Secretary Ribicoff, too, has been carried away with enthusiasm for this novel approach to influencing public opinion, albeit somewhat in reverse. His vote-getting pitch is that 180,000 doctors are against giving medical care to old people and, with eyes raised toward the heavens in mock indignation, he solemnly pontificates that these "180,000 doctors shall not defeat the will of 180,000,000 Americans." But, deftly playing his audiences by ear, he sometimes varies his tactics somewhat and, in so doing, it seems to us he weakens his alleged case against our profession just a trifle. On these occasions, doing a sort of about face, he claims it is only the powerful, reactionary AMA which stands between the old folks and medical salvation, and not really the doctors themselves. "Why!" he says, when he is in *this* mood, "I have evidence in my secret files which indicates that the great majority of physicians may actually be in favor of our medical plan!" And, quite naturally, he is extremely careful never to make mention of the more than fifty strictly non-medical organizations, representing a good big segment of our total population on, which regularly speak against such legislation when he tells us, in grandiose generalities, what the will of all 180,-000,000 Americans is supposed to be in this regard.

As I have said, the Society is strictly limited in what it can do to influence the course of legislative history, and within these limits, it will continue to function as it always has. However, it takes absolutely no cognizance of the political persuasion of its members, nor has it ever engaged in partisan activities of any nature. In contrast to the aforementioned and entirely hypothetical "Chocolate Dippers Union," its inability to take political action and to lay claim to delivering the votes of its members constitutes a real handicap in the face of the situation which Congressman Curtis has so well described. Yet as individual citizens who believe in what we stand for, it is none-the-less disturbing to us to hear ourselves categorized as enemies of the people by Mr. Ribicoff, or to watch Rep. Kowalski on TV wring his hands in despair and anguish that no one but himself is doing anything to help our oldsters, or to be asked publicly by Rep. Giaimo to set aside our convictions and cooperate with him in fostering a fuzzy plan which he doesn't think—but we *know*—will gradually destroy the American system of medical care. It is often suggested cynically that "if you can't lick 'em, join 'em," but it would appear to me that no self-respecting citizen who believe sincerely in free enterprise could ever bring himself to join up with men like these who, inadvertently or otherwise, are promoting legislation which would take away from every community hospital its right to operate in the best interests of its own community and place it under the domination of the Secretary of Health, Education and Welfare; which, ultimately, would take away from everyone connected with health care, providers and consumers alike, the right to choose and the right of local self-determination. No, fellow physicians we cannot join these people but we can join with others who are more responsive to our views, if only they have the courage to take a stand on different ground to run as genuine opponents and not as weak-kneed "me-tooers". We cannot, as a Society, engage in politics but we can give our blessing to the idea of physicians and their families and friends taking a more active part in public affairs through an independent political action committee, and it is my personal belief that you will act wisely if you adopt the resolution on this matter which you have before you today.

On this same subject, I would like to insert here a few additional comments.

Since completing my written report, I have had the pleasure of being an invited guest at two meetings of Connecticut professional organizations — the Naugatuck Valley Medical Society on Tuesday night and the Board Surgeons' group last evening.

In each instance, the featured speaker was a prominent representative of the present administration —Congressman Frank Kowalski at Ansonia, and Secretary Ribicoff's assistant, Mr. Ivan Nestigen, in New Haven. In each instance, the speaker presented the assembled physicians with a slick, glossy package of platitudes and cliches on so-called "medical care for the aged" which presumably his audience was supposed to swallow politely and to complement his remarks merely by asking a few polite, innocuous questions.

I am happy to report that, on both occasions, the doctors did themselves proud in stripping away some of the misleading veneer with which its planners have carefully overlaid the shoddy core of this scheme through which, bit by bit, the government hopes to grasp control of both the providers and the consumers of health services.

I must confess that at both meetings the going got a bit sticky at times, and that the "bare-knuckles" approach was used perhaps a little too freely, but I feel, nonetheless, they proved conclusively it is possible—even easy—to punch large, gaping holes in the arguments of politicians like these and that their rebuttals are chiefly of two general types. The first of these is to conveniently dispose of your points in opposition by simply saying "they just ain't so," pounding the lectern heavily for emphasis. The second, so well exemplified by State Representative Pawlak, of Seymour, is to look out at the doctors with fury and vindictiveness in his eye and tell them "you people are going to get this kind of medical program whether you want it or not and we in the labor movement won't rest until it's put over!"

Doctors have listened and been shocked by what they have heard. Will the public be any less concerned once it learns the truth? I think not, and this is why we must do everything we can to share our knowledge with the public on this vitally important matter.

There is one other matter of importance—a rather disturbing one to me — which I feel should be brought to your attention or, perhaps I should say, returned to your attention. Many of you will recall that last Spring, while the General Assembly was in session, a number of proposals were advanced from several sources, the primary intent of which was to bring about changes in the manner of election of

Blue Shield directors, and each of these carried with it a definite secondary purpose of reducing the physician members to a minority status.

On that occasion, both the Council and the Board of our Connecticut Blue Shield plan acted wisely in adopting practically identical resolutions which stated, in effect, that the Board of Directors, as it was—and still is—constituted, was operating the plan effectively in the public interest. As a consequence of this prompt, joint action and through appropriate legislative efforts, all these proposals fell by the wayside.

I am not refreshing your minds on these matters merely as a reprise. Quite the contrary. I am doing so for the reason that, in recent months, it is clear that a mushrooming enthusiasm is developing here and there throughout the counrty for a general proposition that physician representation on Blue Shield boards should be substantially reduced or eliminated altogether.

The number one advocate of this proposition is Mr. Walter J. McNerney, now president of National Blue Cross, who as former head of a Michigan University study group recommends more or less that practicing physicians not be allowed to serve on the governing bodies of Blue Shield plans. There is no time to go into all the facets of Mr. McNerney's study but it appears that, in brief, he fears doctors may not be competent to participate in the operation of a large corporation and that their concern for the problems of providing and financing health care may not be entirely devoid of self-interest. On the other hand, one gathers by implication, though not by statement, that non-physician directors are perforce all eminently qualified to run a corporation, all have no blemish of self-interest whatever in their varied occupations as industrialists, labor unionists, etc., and all have a better knowledge than doctors of the complicated business of providing health care.

Mr. McNerney has apparently found a number of kindred souls who agree with him in this. Among these is the frequently quoted Insurance Commissioner of Pennsylvania, Mr. Francis R. Smith, who has handed down such disturbing rulings as that Blue Shield is no longer to be considered as the "doctors' plan" for service, it is now the public's plan rather exclusively; that it has not been the active voluntary participation of physicians which has made possible reasonably-priced prepaid care to the people through Blue Shield, but the great wisdom of state legislatures in allowing the plans to come into existence and in granting them tax exemptions; and that the interest of the doctor in the policies of these corporations should be confined to making sure he gets what Mr. Smith calls "cash on the barrel-head". Perhaps in is this sort of non-medical opinion which led the Hartford Times, some months back, to speculate as to whether Blue Shield wasn't becoming just "a collection agency for the physicians." At any rate, Commissioner Smith also feels that the medical profession is entitled to only token representation on Blue Shield boards.

Now, the basic argument here seems to be that if a million or so people are paying their money to Blue Shield to be protected against the costs of certain services of doctors, and if only two or three thousand participating doctors are providing these services, it should follow that this great numerical superiority of the public over the profession entitles the public to have much greater representation on the plan's governing body. Yet, if we consider that the same few thousand physicians provide every single one of the covered services required by every single one of the plan's members, then perhaps it becomes clearer that patients and doctors are actually equal partners in the venture, with the corporation serving them both, largely as a collecting and disbursement agency. Thus, when Commissioner Smith, Mr. McNerney and others state that the present-day challenge to Blue Shield is to "provide ever-broadening medical care to citizens", they are perhaps inadvertently repeating a very common point of public misunderstanding. Blue Shield, as we all know, does not provide, and has never provided, "medical care" in any form. Doctors of medicine are the only ones qualified to do that, and it is their voluntary acceptance of the Service Benefits principle which makes Blue Shield programs so unique, and so entirely different from those offered by private insurance carriers, on whose boards there are not necessarily any representatives of the profession.

Now, what is the attitude of this Society toward the opinions of some of these national experts on Blue Shield? In times gone by, it has been suggested by some that it was not possible for our spokesmen to talk of how the "majority of doctors" felt about questions like these, because they had no factual knowledge to substantiate their contentions. Today, however, things are different and there is no longer any need for us to only speculate as to what our members think. The Opinion Survey has been completed and its results have been analyzed and tabulated by an entirely neutral professional agency. Abstracts of the entire report will soon be published in Connecticut Medicine, but I believe it would be of value for the House to become cognizant of the opinions of Connecticut doctors on the matters at hand.

1. A majority of 74 per cent of those responding expressed a desire to make known their views on the medico-economic policies of Blue Shield

through their State Medical Society, the plan's sponsoring agency. 14 per cent more would be satisfied to be represented more or less exclusively by the medical society's members who serve on the Blue Shield board of directors. Comparatively few, only six per cent, would prefer to influence the plan's course as individuals or as groups of participating physicians. This means, in effect, that nine out of ten doctors believe that, as active participants in Blue Shield, they are entitled to a proper and reasonable voice in its policies, and prefer to have their State Medical Society reflect their views to the plan.

2. With respect to an equitable composition of a Blue Shield board of directors as between physicians and laymen, 56 per cent of those replying are quite satisfied with a 50-50 balance, and an additional 36 per cent would favor a majority of physicians. By contrast, only two per cent felt that a majority of laymen would be desirable, and less than one per cent believed there should be no doctors at all on the board. Thus, we see that here too, nine out of ten doctors believe that professional representatives should have at least equal status with so-called "public" representatives, although it is recognized that all directors will perform in the public interest.

3. As in the two previous instances, better than 80 per cent believe that in all fairness the sponsoring medical society should have the privilege of nominating the physician directors of the plan and should be assured of the election of its nominees, leaving the nomination of all non-physician directors entirely to the wise judgment of the plan's corporators.

In view of the national thinking on which I have reported to you, and because it is my conviction that we may not have heard the last of these matters at local level, it is my opinion that the House might serve a useful long-range purpose by taking into account the expressed opinions of our members in this regard, and reaffirming a traditional position of the Society by considering and acting upon the following resolution:

RESOLVED: That the House of Delegates of the Connecticut State Medical Society reaffirm its long-standing position that a medical society shall have no less than numerical equality as to Physician vs. Lay directors on the board of any Blue Shield plan it sponsors, and shall retain the exclusive privilege of nominating the physicians to be elected as directors of such a plan. (Adopted by the House of Delegates in amended form. See General Manager's Section.)

Respectfully submitted,
William R. Richards, M.D.
General Manager

Doctor's Office

Douglas A. Rofrano, M.D., announces the removal of his office from Wolcott Road to 30 Beach Road, Wolcott.

Herbert N. Schwartz, M.D., announces the opening of a branch office at 160 Farmington Avenue, Bristol.

Ernesto R. Soriano, M.D., announces the opening of an office for the practice of psychiatry at 1064 Poquonnock Road, Groton.

Eric J. K. Turkalo, M.D., announces the opening of an office for the practice of surgery at 261 Danbury Road, Wilton.

New Tranquilizer Reduces Sedative Effect

Chlordiazepoxide (Librium), a new tranquilizer, is capable of reducing anxiety in most cases without sedation, a study showed.

Doctors Joseph M. Tobin and Nolan D. C. Lewis, Princeton, N. J., reported on a study of the effects of the drug in the current Journal of the American Medical Association.

They said their findings showed that "chlordiazepoxide abolishes or decreases anxiety and related symptoms, mostly without depression of the central nervous system if dosage is adjusted to the patient's need."

The antianxiety effect of chlordiazepoxide is more specific than other popular tranquilizers, such as meprobamate, since these other tranquilizers relieve anxiety and tension only by depression of the central nervous system which is manifested by obscured awareness and impaired mental acuity, they said.

As for its safety, the consensus of all those who took part in the study was that the drug "has a margin of safety greater than that of other psychopharmacological agents with tranquilizing properties."

"Although the incidence of side effects was relatively high, they were mostly transient and relatively inconsequential," the authors reported. "Drowsiness and ataxia [lack of muscular coordination] were invariably related to overdosage."

Even prolonged administration of chlordiazepoxide did not produce any untoward effects on the blood system or function of the kidneys or liver, they said.

The 15-month study involved 212 men and women, ranging in age from 12 to 76, whose predominant symptom was anxiety. The majority had severe symptoms and had failed to respond to other tranquilizing agents.

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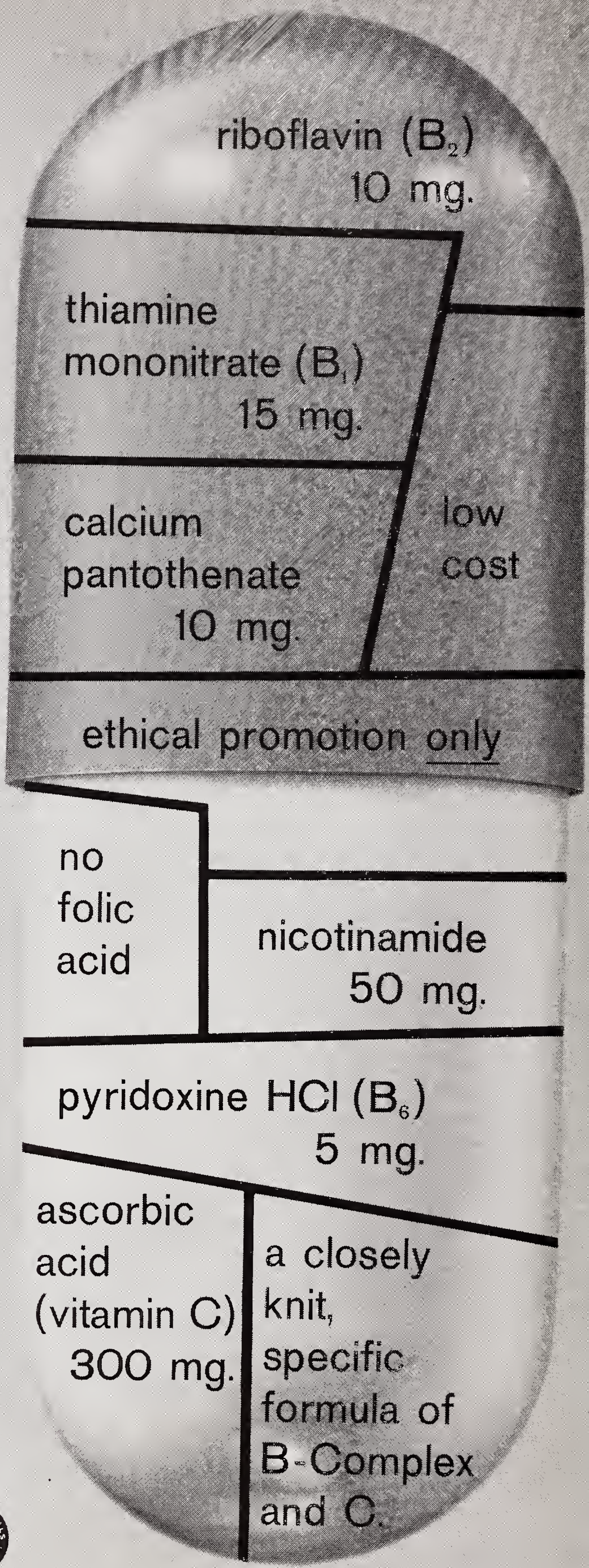

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LETTERS TO THE EDITOR

December 8, 1961

Dear Sir:

On November 27th I was panelist on a public forum on "Medical Care for the Aged" sponsored by Post 204, Hamden Jewish War Veterans at Michael Whalen Junior School in Hamden. I represented the New Haven County Medical Association, and fifty-five of my colleagues and friends came with their wives to provide moral support because I lack experience as a public speaker. Five or six other people came because of connections with the other panelists, and there were some members of Post 204 present. To my great surprise there were only eight or ten other men and women who came seeking the valuable information which was being made available as a public service by the veterans.

This extremely poor response occurred despite wide publicity generously given by the *New Haven Register*, the *Journal Courier*, the *Hamden Chronicle*, and local radio and television stations. The Program Committee had worked hard and the communications media had gallantly supported their efforts.

As I sat on the platform discovering that we could have held this meeting in a phone booth, I was struck by the seeming absurdity of the opening remarks of the moderator. He said, in essence, that next to the fear of nuclear war, the problem which is uppermost in the minds of all American people today is "medical care for the aged". Recognizing that his speech had been prepared in advance, I suddenly realized how inappropriate it was in a gathering of this size.

Later, when I returned home, I speculated as to why such a widely publicized meeting had elicited so meager a response. Even supposing there may have been some other reason, I was forced to conclude that the chief cause for this insignificant turn out was that the great majority of people, *left to themselves*, do not consider this matter to be an important public issue because they are generally satisfied with the quality of medical care and with the wide variety of methods of paying for it which have developed under our voluntary system of free enterprise.

I further concluded that if politicians and their supporting pressure groups would leave this entire question to the discretion of the people, no contrived and insincere hearings such as Senator Smith's Committee conducted in Hartford on November 20th could ever be held. In that instance, it is clear a "command performance" was being staged and that, by previous arrangement, carloads of old folks were transported to the hearing by union representatives to give the committee a captive audience.

However, in the case of the Hamden Jewish War Veterans public forum, such few people as attended came of their own free will because they were genuinely interested.

In my opinion, the contrast between these meetings has great significance to all thinking men and women. As I see it, the good people of Hamden—in fact of the entire New Haven area—have proven beyond the slightest doubt that "Medical Care for the Aged" is an issue of importance only to power-hungry bureaucrats and their satellites.

I agree with Representative Thomas B. Curtis of Missouri that it is heaping indignity upon the heads of our older citizens to make them unwitting pawns in a cynical game contrived by politicians to buy votes with an empty promise to give them something for nothing.

Sincerely yours,
JACHIN B. DAVIS, M.D.

November 16, 1961

Dear Dr. Nahum:

While the occurrence of tetanus is not frequent, it is still a problem and a responsibility for the medical profession. There are available approved methods of applying prophylactic treatment for the prevention of tetanus in case of injury. In the patient that has received adequate prophylaxis through active immunization with tetanus toxoid, there is no problem. A booster injection of tetanus toxoid is deemed adequate for protection in this situation.

The real problem arises in the non-immunized individual with a potential tetanus-producing injury. In this situation the administration of tetanus antitoxin is recommended. It is not my purpose to discuss the efficiency of this procedure or the doses necessary for adequate protection. It is rather my concern that in cases where horse serum sensitivity is apparent there is a tendency on the part of the medical profession, especially the personnel of the emergency facilities of our hospitals, to evade this responsibility by actually inducing the patient to sign a paper refusing the administration. It is true that there are certain dangers of reaction to the administration of horse serum to a horse serum sensitive individual even if this administration is done by a slow fractional method. But is it justifiable to convince a patient to refuse administration of the antitoxin by emphasizing the dangers while neglecting to emphasize the dangers of the tetanus which may occur if no protective treatment is employed?

There are legal considerations in these circumstances which can be argued both ways. It does seem that we as physicians are committed to honestly offer a full and impartial explanation of the details involved. We are obligated to explain the use of tetanus toxoid, tetanus antitoxin and bovine tetanus antitoxin and to strongly recommend that one of these procedures be used. If, then, the patient refuses treatment. I feel that we have discharged our responsibility.

I have quoted no statistics and indicated no particular cases or hospitals. This letter is not intended as a castigation, but as a plea for all of us, especially our hospitals, to reexamine the procedures employed and to make sure that we are not inadvertently evading responsibility.

Sincerely yours,
PAUL WINER, M.D.

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NEW BOOKS IN REVIEW

HOSPITALS, DOCTORS AND DOLLARS, by Robert M. Cunningham, Jr. Published by F. W. Dodge Corp., New York, New York 1961, 275 pp. $6.95.

Reviewed by: DENIS S. O'CONNOR

Since anything concerning hospitals or doctors seems to be of interest, the author, who as an editor and reporter for hospital publications for many years, has collected his many magazine articles which he published under the above title.

The author is not a bitter opponent of everything that the American system of medical care stands for. He recognizes the shortcomings of the hospitals and the doctors but he realizes that it isn't medical care which is on trial but how medical care will be paid for. He doesn't have all the answers but he does discuss the problems in medical care which the swift developments in medical science have presented.

While the book is for the general reader who is interested in the problems of medical care and who is willing to listen to one who has some opinions in the matter, it would be well for doctors to read this book, not to learn something which they do not already know but to recall to mind some of the criticisms which have been leveled against hospitals and doctors and to think through some of the answers to the problems they represent.

YEAR BOOK OF MEDICINE 1961-1962, by Beeson, Muschenheim, Castle, Harrison, Ingelfinger and Bondy. Year Book Medical Publishers, Inc., Chicago, Illinois, 1961, 810 pp. $8.00.

Reviewed by: LOUIS H. NAHUM

This book makes available in the field of infections, the lungs, the cardiovascular system and kidney, blood and blood forming organs, the digestive system and metabolism, in detailed abstract form the working essence of the important contributions as found in international medico scientific literature. Present are the vital advances in clinical management and research by the distinguished editors. After many of the abstracts are cogent remarks by the editor which places the individual contribution in proper perspective. What is especially valuable in this issue is a ten year summary of advances that have taken place in each field by the editor and in some instances predictions as to the areas in which future progress may be expected.

There are significant papers answering many questions that occur in everyday practice. For example, is long term steroid therapy warranted in chronic pulmonary emphysema. What oils seems most effective in lowering chloresterol? What is the best gamma globulin dosage in hepatitis? What clinical signs indicate gram negative bacteremia? Is tuberculosis important in etiology of sarcoidosis? What is the single commonest cause of blindness in the U. S.? What findings suggest that Leukemia in man may be caused by a virus? What are the three main groups of auto immune diseases? What is the commonest site of the plaque causing renal artery stenosis? There are dozens of other answers to important clinical problems. These are but a few to encourage all modern physicians, to keep in touch with the literature and this year book is an excellent way to do it. The editorship is high-class. One will not fall behind in this rapidly changing medical world if one has recourse to this volume.

THE NEUROLOGICAL EXAMINATION OF THE INFANT, by André-Thomas, Yves Chesni and S. Saint-Anne Dargassies. Published by the Medical Advisory Committee of the National Spastics Society, London, 1960, $1.00.

Reviewed by: RUSSELL V. FULDNER

Called upon to assess an infant's neuromuscular status the physician may understandably be seized with slight dismay. A subject so small, balky and uninterested! The routine of the adult neurological examination, largely structured on response to command, seems all but closed. Even eliciting common reflexes may turn into a contest of wills, examiner pitted against examinee.

Gesell and Amatruda laid a firm plank across this marshy ground with the publication of *Developmental Diagnosis.* Having carefully charted the averages of infant behavior at varying ages these authors were able to construct maturation schedules of nearly mathematical exactness, deriving a rating of subject versus norm. Thus obtained, the Development Quotient measures an infant's adaptation and performance much as the I. Q. is supposed to measure his intelligence. According to Gesell the D. Q. is an expression of maturity status: "it does not take account of the etiologies of defects and deviations." The neurological examination hence becomes accessory to the developmental. What Gesell introduced into evaluation of the infant, an evaluation taking account of both mental and physical maturity, was a new dimension: that of time. Or if not quite new at any rate elaborated to a refinement hitherto undreamed of. Time is the coefficient that endows the Development Quotient with meaning.

The authors of *The Neurological Examination of the Infant* have provided the clinician with yet another excellent plank on which to construct his evaluaion. Incredible as it appears, André-Thomas began writing on scientific subjects before 1900 and has been a fertile contributor to French neurological literature ever since. He and his collaborators describe in this little handbook, using an easy, undogmatic style, the procedures to be followed in neurological evaluation of the newborn. A second section covers the older infant. The book is of handy size, its covers thoughtfully waterproofed, and the British translators have not only brought the text through clearly but provided an illuminating foreword.

Some of André-Thomas's procedure is familiar, some novel. Not all of us may be conversant with the *doll's eye phe-*

nomenon (rotation of eyeballs to opposite direction with passive head turning); *scarf sign* (increased *extensibilité* of shoulder muscles, shown by wrapping the infant's arm around the opposite side of his neck); or *digital response* (successive extension of fingers with stimulation of ulnar border of palm). André-Thomas says that muscle tone is to be evaluated, *inter alia*, by the qualities of *extensibilité* and *passivité*. The former seems to correspond to lengthening capacity—what we test for in dorsiflexing an infant's foot to determine "tone" in the gastrocnemius. *Passivité*, not so often elicited in American procedure, is the degree of resistance to passive movement shown by "flapping" the part under test, such as the wrist. André-Thomas cannot quantitate his results as Gesell does, and it may strike us that a sixth sense of intuition forms part of the diagnostic equipment. The text is precise and objective, however, and the line drawings numerous and practical. Thus posted, the reader needs but a few hundred babies to transform himself into a master of the subject.

It is difficult to know what to make of the opposite opinions held by Gesell and André-Thomas on the subject of the tonic neck reflex. Gesell calls the TNR "a conspicuous feature of the spontaneous supine behavior of the post-fetal infant during the first 12 weeks of life." Says André-Thomas: "When the newborn baby is lying supine the position of his arms is scarcely ever affected by spontaneous or passive rotation of the head." Taking the TNR as an expression of neurological immaturity, are newborn American babies less mature than their French counterparts? Gesell taught that the development of behavior patterns begins before birth and continues throughout childhood. If the patterns leading to obliteration of the TNR depend partly on conditioning — a point which Gesell might not have conceded at all — do French customs and usages condition the reflex's early disappearance? The prevalence of breast feeding in France may be instanced.

As neurological diagnosis in infancy was immeasurably advanced by Gesell, this work of André-Thomas should greatly enrich clinical perceptivity in the same field. Differing in approach, the two masters are similarly committed to an evaluation at once exact and imaginative, fertile in technic and implication. Both Gesell and André-Thomas consider history-taking basic to diagnosis. Both regard the examination as much a bench mark for comparison with further stages in the evolving nervous system as an end in itself. Each of these men, alike endowed with an unquenchable sense of wonder, finds deeply intriguing the progression: *fetus—infant—child*. Gesell views this in terms of expanding integration of sensorimotor behavior patterns, "a process of reincorporation and consolidation with progressive corticalization". André-Thomas also sees the process of neurological development in terms of integration: "an introduction of a function into the intimacy of a living organism—an introduction so deep and so intimate that the function introduced becomes part of this organism and in a way makes it a new organism". To him the complexities are such that even normative patterns of integration are not well understood, let alone the disorderly patterns of disease. At this stage of our knowledge every well performed examination carries the potential of a contribution: "We are, it appears, still at the stage of finding out what is normal."

INTRODUCTION TO ANESTHESIA—The Principles of Safe Practice by Robert D. Dripps, M.D., James E. Eckenhoff, M.D., and Leroy D. Vandam, M.D., Second Edition, Published by W. B. Saunders Company, Philadelphia, Pennsylvania, 1961, 413 pp., $8.00.

Reviewed by: STEVENS J. MARTIN M.D.

The rapid advances in anesthesiology have necessitated not only an organized compilation, classification and application of data but also a periodic re-evaluation and condensation. This is particularly important for the beginner, the uninformed and for others anxious to learn about anesthesia. The "Introduction to Anesthesia" by three experienced, well-known anesthesiologists, Doctors Dripps, Eckenhoff, and Vandam, is an outstanding monograph or more appropriately a "condensed text." The second edition contains not only an invaluable re-evaluation of our knowledge but also newly added comments on "physiological effects of hypercarbia," special procedures such as hypothermia, hypnosis, "controlled hypotension," asepsis in anesthesia, medicine and the law, and other considerations. The book represents a wholesome balance of sound, basic principles, their clinical application and the philosophy in the practice of anesthesia.

The seven chapters of the book include the entire scope of anesthesia practice beginning abruptly with "The Preanesthetic Period" and "The Day of Anesthesia," and concluding with "Special Topics." Other chapters such as "During Operation," "The Postoperative Period," "The Anesthetist as a Consultant," emphasize the academic and clinical background necessary for the present-day anesthesiologist. The chapters are written clearly, concisely and with adequate illustrations and reference lists. Both the type of print and quality of the 400 pages contribute to ease of reading. One may criticize the lack of historical accounts, the scarcity of "controversial issues" and the short reference lists—containing relatively few foreign contributors. However, the book was deliberately designed as an *introduction* to our specialty. As such, it has surpassed its goal. Accordingly, it is highly recommended to all residents in anesthesia and other physicians interested in gaining an insight to the fundamental principles and practice of anesthesiology.

HOW TO WRITE SCIENTIFIC AND TECHNICAL PAPERS by Sam F. Trelease, The Williams & Wilkins Company, Baltimore, Md., 1958, 176 pp., $3.25.

Reviewed by: VIVIAN C. FERIOLA

This is a short, easy to consult handbook on the writing and final preparation of scientific papers that should be as helpful to a research doctor as his dictionary or his favorite writer's guide. There is a chapter on preliminary work that deals with the ins and outs of library facilities and how to unravel them, the use of general and specialized guides to different fields of study and the first efforts at assembling data. This is followed by chapters on the writing of the paper which include excellent sections on revision, language form and usage, how to set up tables of statistics and the writing and reading of symbols. There is also a section on how to prepare drawings and photographs as accompaniments to a text and how to plan graphs for comprehensiveness and clarity. There is a final chapter on proofreading the manuscript and a list of the printer's symbols most commonly used in making corrections.

Best of all, Trelease is exhaustively specific about all the problems of manuscript preparation he touches on, problems which seem trivial to the researcher until they are improperly dealt with and result in a confusion of meaning or an apparent carelessness of presentation.

This handbook is well laid out and covers practically every phase of scientific writing to aid the physician in the preparation of his manuscript, whether he is a beginner or an experienced writer.

Around The State

UNWANTED SAMPLES

At the November 16th meeting of the Joint Conference Committee of Connecticut State Medical Society and Connecticut Pharmaceutical Association, the problem of unwanted samples given or sent to physicians was discussed. It was the consensus of opinion by the physicians present that samples of drugs sent through the mail were the greatest problem.

The Secretary was directed to write to Dr. Austin Smith, President of the Pharmaceutical Manufacturers Association, apprising him of the feeling of this committee in regard to the mailing of samples and suggesting that a supply sufficient only for inspection be sent. If a greater quantity was desired, the practitioner could request them.

NAUGATUCK VALLEY MEDICAL SOCIETY

On December 5th a well publicized modified panel discussion with the main speaker, Congressman Frank Kowalski, was held. The topic was, "Financing the Medical Care of the Aged." A favorable local press was obtained and the local radio station chose to broadcast a two hour tape recording of the three and a half hour program.

On December 9th, the Naugatuck Valley Medical Society held its annual Christmas meeting. Each year, the outgoing officers of the Society and its Auxiliary are honored at a banquet and the incoming officers installed. The newly elected officers for 1962 are:

James P. Mooney, President.
Philip D. Henry, Vice-President.
Charles M. D'Alessio, Second Vice-President.
John J. Narowski, Secretary-Treasurer.
William L. West, Corresponding Secretary.

During the evening, recognition of dedicated service to the Society is made in the form of numerous annual awards to outstanding members. The highest award this year was presented to Jack H. Galen for his outstanding service in the field of physician-hospital relationships. The annual report of the outgoing president, William L. West, and the program of the incoming president, James P. Mooney, were heard.

The awards for society service for 1961 were as follows:

Certificates of Merit were given to: John M. Renehan, M.D., for Scholarship Program, Polio Program; Victor L. Szanton, M.D., Personal Health Record, Bee Sting Committee; Ralph H. Edson, M.D., Emergency Panel, Speakers' Bureau; Philip D. Henry, M.D., Programming; Dr. Fred M. Haddad, Hospital Committee; Charles M. D'Alessio, M.D., Chairman of the Ticket Committee, First Annual Ball, Women's Auxiliary; The Women's Auxiliary, In Appreciation to their service, toward the Polio Program, the Ball; Mrs. Fred M. Haddad, Chairman of the First Annual Women's Auxiliary Ball; Mrs. Stewart J. Petrie, Chairman of the First Annual Auxiliary Ball; James P. Mooney, M.D., Chairman of the Ticket Committee, First Annual Women's Auxiliary Ball; and Jack H. Galen, M.D., Hospital Committee.

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900 Calorie Liquid Diets – Do They Really Work?

How effective are these 900 calorie liquid diets which have recently come into such prominence? Are they truly the answer to our weight control problem or do they do more harm than good? Let us evaluate them.

In the first place, of what do they consist? Their contents are no mystery. It is no secret that we have been using the same type of diet therapeutically in hospitals for years, and very effectively. However, our goal was never weight reduction. When a patient is not able to eat solid foods, a liquid mixture is prepared with a minimum number of calories to sustain one at bedrest yet provide all the necessary nutrients to maintain sound nutrition. As a basis, whole milk solids and non-fat milk solids are used. To this is added enough water to give volume plus vitamins and minerals to meet the daily recommended allowances as set forth by the National Research Council. To-day, one can purchase all sorts of pharmaceutical preparations to which one merely adds water. These, of course, are less time consuming but more costly. This is an excellent diet when used for short periods as a therapeutic measure under the close supervision of both physician and dietition. My contention is that it is a mistake to remove this diet from the hospital environment. This same mixture, incidently, has also been used effectively as an in-between nourishment for people on High Caloric High Vitamin Diets. It works beautifully for those desiring to *gain* weight. As for their weight reducing powers, let us analyze that area.

How do you reconcile the fact that one should not lose more than 2 lbs. per week maximum with the fact that one can lose up to 7 lbs. per week on these liquid diets? How wise is it to lose so much so quickly? Besides, do you feel that a housewife with three growing children to look after, a home to maintain, and all the other countless duties to perform is getting enough energy from 900 calories to carry her through the day? Should not the activity of the individual be considered before such a diet is prescribed? A properly written diet is an individual diet. Not only must one consider the individuals' activity, but also his religion, social and economic backgrounds, likes, dislikes, food idiocyncrasies etc. These all play a very important part in how a diet is written.

Now, since the whole point of weight reduction is not only to lose weight but maintain this weight loss for ever after, our goal is not to see how much weight can be lost in as short a period as possible. It is far better to lose 4 lbs. a month and retain that loss than 4 lbs. a week for a period of a month and gain it back one month later. This latter method hardly solves the weight problem to say nothing about what it does to the vital organs. Not long ago, I heard a cardiologist remark that rather than see his patients lose weight rapidly and regain it quickly, he would prefer that they not lose any weight at all.

What about the extra cost to the family budget? This can be sad indeed. Now that everyone has "gotten into the act", the prices have come down somewhat, but the original can which is one day's supply still cost $1.19. That is $8.33 a week which could be far more profitably spent on food for all members of the family. Just think what this can do to a low income food budget!

What about the side effects of these mixtures? In many cases, there has appeared symptoms of gastro-intestinal distress namely, nausea, gas, bloatiness, epigastric burning and constipation. To combat constipation which is the most prevalent since this diet definitely lacks bulk, the pharmaceutical houses who make these mixtures have suggested that raw celery and carrots be eaten. One can't help but think of all the people whose gastro-intestinal tracts cannot handle such roughage as raw carrots and celery. And what of all the undiagnosed obese diabetics who take it upon themselves to lose weight in this fashion in spite of the fact that all the advertisements (in small print, of course) recommend that one consult his physician?

Therefore, since weight reduction is a long term program, it just doesn't make sense to use a remedy that at best is a temporary measure. Sooner or later, individuals on this regimen are going to become very unhappy and dissatisfied with drinking their meals whether whole or in part. And just as soon as they return to eating three solid meals a day, they are going to fall right back into their old habit of eating too much of the wrong kind of foods. This, of course, completes the circle bringing the person right back where he started before going on this 900 calorie liquid diet. Why not re-educate him at the very start. Show him how to cut down rather than cut out those foods which make up a well-balanced meal pattern for the day.

I don't mean to imply that losing weight correctly is a simple problem. On the contrary, anyone who has worked with large numbers of obese patients does not have to be told by a psychiatrist how important food can be to some individuals. In many cases, one cannot take food away with impunity. We must not ever forget that obesity is still the least of the evils, since it remains socially acceptable. Maintaining ones weight at an ideal level is a lifetime job for most of us. It is difficult enough for the active young person, but a tremendous task for the inactive middle-aged. It is therefore, a mistake to encourage any diet regimen indiscriminately that promises a large weight reduction, but fails to mention what happens on the return to a normal routine which is inevitable. The modification of the normal diet which reduces the calories for each individual taking into account his or her activity for the day plus the addition of the necessary vitamins and minerals still remains the more intelligent way to lose weight and retain that level for the rest of ones life. The 900 calorie liquid diet mixtures are hardly the answer to our weight problem.

Should anyone feel that 900 calories are an adequate diet, why not the following which is a much more realistic approach than the liquid mixtures and contains approximately 930 calories:

Supplementary Vitamin Medication

General Outline	*A Typical Day's Menu*
BREAKFAST	BREAKFAST
4 oz. serving citrus fruit	4 oz. orange juice
1 Egg	1 Soft-cooked Egg
½ slice bread (whole wheat or enriched)	½ slice toast
4 oz. skimmed milk	4 oz. skimmed milk
Coffee (black—no sugar)	Coffee (black—no sugar)
LUNCH	LUNCH
3 oz. Lean meat, fish or poultry	3 oz. Lean hamburg
1 slice bread (whole wheat or enriched)	1 slice bread
Salad with vinegar and spices	Mixed Salad with vinegar and Slices—tomato, cucumber, onion, Escarole, Radish, Green pepper, Lettuce, Romaine.
1 Serving fresh fruit	1 Small fresh apple
Coffee (black—no sugar)	Coffee (black—no sugar)
DINNER	DINNER
3 oz. Lean Meat, fish or poultry	3 oz. Lean roast chicken (no gravy)
1 Serving vegetable	½ cup string beans (no butter)
Salad with vinegar and spices	Tomato and lettuce salad—vinegar and spices
1 Slice bread or substitute	1 Small baked potato
1 Serving fresh fruit	½ cup mixed fresh fruit
Coffee (black—no sugar)	Coffee (black—no sugar)
BEDTIME	BEDTIME
4 oz. Skimmed milk	4 oz. Skimmed milk

Mrs. Beatrice Yarnovitz, B.S.M.S.*
Consultant on Nutrition, St. Francis Hospital, Hartford, Connecticut.

This article prepared at the request of and approved by the Sub-Committee on Nutrition of the Committee on Public Health of the Connecticut State Medical Society.

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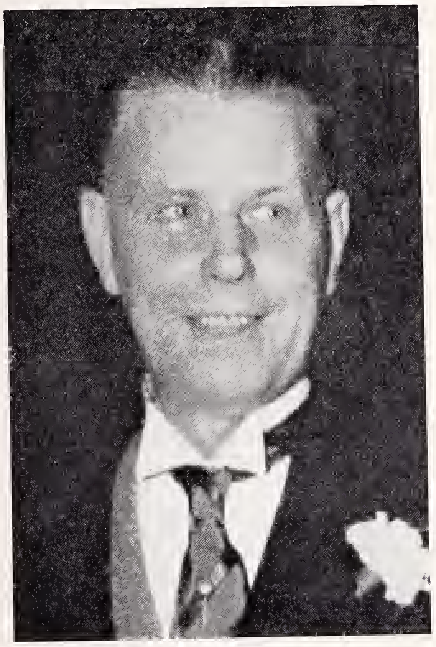
OBITUARIES

William P. Daly, M.D.
1893 - 1961

Dr. William P. Daly died at St. Francis Hospital on October 29, 1961.

Dr. Daly was graduated from Hartford High School. After graduating from Georgetown University and Georgetown Medical School, he served residencies in obstetrics and gynecology at Rotunda Hospital in Dublin, Ireland, Bellevue Hospital and Sloan Maternity Hospitals in New York.



After serving in France during World War I as a medical officer in the Marine Corps, he returned to Hartford, where he opened an office for the practice of obstetrics and gynecology. Dr. Daly was the first obstetrician to perform cesarean sections in St. Francis Hospital; previously cesarean sections were performed by the general surgeons. For many years, Dr. Daly was Chairman of the Department of Obstetrics and Gynecology at St. Francis Hospital. His skill and resourcefulness in the face of terrifying hemorrhages snatched many an obstetrical patient from seeming inevitable death. Although his extensive practice often exhausted him physically, he always maintained a reservoir of sympathy and kindness for his troubled patients. He was president of the St. Francis Hospital Staff from 1947 to 1948.

He was a member of the Hartford County Medical Society, the Hartford Medical Society, the Connecticut State Medical Society, and the International College of Surgeons.

Dr. Daly's chief delight was in following the sea. Besides his numerous trips to Europe, South America, the West Indies, and one trip around the world, he has been known to sail to England and return without disembarking. All of the doctor's trips were preceded by long hours of reading about the customs, politics, and religions of the lands he planned to visit.

His death is an untold loss to his family, his friends, his patients, and his hospital.

Francis X. Fagan, M.D.

Max Ruskin Smirnow, M.D.
1881 - 1961

Dr. Max Ruskin Smirnow died in the 80th year of his life in the city where he lived and taught and practiced throughout his period of activity. Dr. Smirnow was brought here from Russia while very young, and obtained his primary schooling in this city, and his medical education at the Yale University Medical School. On graduating, he was chosen by his teacher and mentor, the late Dr. Charles J. Bartlett, to enter the field of bacteriology, where he remained and taught for the better part of fifteen years. He then entered private practice in general medicine, with specific interest in diseases of the chest. This he continued until the middle of the eighth decade among us.

A quiet, unassuming man, he always met the challenge which was offered him by the practice of medicine efficiently and thoroughly. Of a retiring nature, yet he responded to the calls of his profession and community whenever those appeared, participating in the activity of numerous philanthropic and communal organizations. He spent his later years among us as the full time physician to The Jewish Home for the Aged, one of his favorite activities. He passed from among us on November 17, 1961, ending a career in medicine which could prove an example to many. His wife, Ellen Shanok, a registered nurse, predeceased him. His twin daughters, Mrs. Adele Beck and Mrs. Leah Nathanson survive him.

The memory of Dr. Smirnow, scholar, teacher, physician, will be revered by all who were privileged to know him during his lifetime.

Maxwell Lear, M.D.

Special Notices

HARTFORD HOSPITAL

Saturday Morning 11 O'Clock Guest Speakers
January 6 to February 24, 1962

January 6—H. G. Thompson, Jr., M.D., Asst. Professor of Neurology, University of Wisconsin
Subject: "Multiple Sclerosis"

January 13—Frank Foster, M.D., Lahey Clinic, Boston, Massachusetts
Subject: "Role of the Internist in Gynecology"

January 20—George Wheatley, M.D., Medical Director, Metropolitan Life Insurance Company, N.Y.C.
Subject: "Health Insurance—Bane or Boon?"

January 27—Hartford Hospital Research Projects

February 3—Joseph Nathanson, M.D., Associate Professor of Obstetrics and Gynecology, Cornell and New York Hospital
Subject: 10:00 A.M. "Changing Concepts in the Treatment of Desultory Labor"
11:00 A.M. "Pediatric and Geriatric Gynecology"

February 8-10 (Three-Day Visiting Surgeon)—John H. Mulholland, M.D., Professor of Surgery, New York University
Subject: 9:00 A.M. Surgical Case Presentations
10:00 A.M. "Surgical Grand Rounds"
11:00 A.M. "The Biliary Tract"

February 16-17 (Two-Day Visiting Surgeon)—Sidney Gellis, M.D., Professor of Pediatrics, Boston University; Director of Pediatrics, Boston City Hospital
Friday 11:00 A.M. "Persistent and Recurrent Fever in Childhood"
2:00 P.M. "Acute and Chronic Hepatitis" (Round Table)
Sat. 9:00 A.M. Pediatric Ward Rounds
11:00 A.M. The Uses of Gamma Globulin

February 24—Benjamin Spector, M.D., Professor of Bio-Anatomy, Tufts
Subject: "The Holistic Approach to Backache"

NEW YORK EYE AND EAR INFIRMARY

The Annual Spring Meeting of the Alumni Association of the New York Eye and Ear Infirmary will be held April 9-12, 1962.

On the Eye Side, the meeting will be oriented towards Cataracts. Symposia will be offered on Pre-Operative Work-Up, Surgical Management and Complications of Cataract Surgery. There will also be courses and a closed circuit television demonstration of surgical procedures.

On the ENT Side, there will be Symposia on Complications of Stapes Surgery and Significance of a Mass in the Neck as well as lectures and closed circuit television demonstrations of surgical procedures.

Additional information may be obtained by writing to the Secretary, Alumni Association, 218 Second Avenue, New York 3, N.Y.

Coolness Of Oxygen Tent Has Therapeutic Value

The cool environment of an oxygen tent can be of help in the treatment of a number of ailments during hot, humid weather, three New Orleans physicians reported recently.

Writing in the recent Journal of the American Medical Association, Drs. G. E. Burch, N. P. DePasquale and A. L. Hyman said they found a cool atmosphere was beneficial in the treatment of allergic skin rash, kidney disease, infectious diseases and thyroid disease in addition to heart disease and asthma.

"Except in certain instances maximal benefit to the patient was obtained simply by placing him in a cool environment with a normal oxygen concentration of the air," they said.

A warm, humid environment increases the work of the heart, they said. Even though a person is resting in bed, hot weather forces the heart to work harder to maintain the body's normal temperature, they said.

"Under such environmental conditions cardiac as well as other debilitating diseases are less likely to improve," they said.

In a study of 10 patients, the authors said, they found in every instance cardiac output, or work, was higher when the patients were in the warm environment than when they were in oxygen tents.

In patients without heart disease, average cardiac output was 49 per cent lower inside the tent, they said. In patients with heart disease, average cardiac output was 42 per cent lower inside the tent, they said.

Millions Spent For Cold Remedies That Do Not Cure Colds

Cold remedies relieve Americans of millions of dollars each year but they do not cure or prevent colds, according to a publication of the American Medical Association.

"No cold remedy can do anything more than provide temporary relief of certain cold symptoms," an article in the current Today's Health said.

"Many do not even relieve symptoms effectively. Hence, they do little more than subtract from your pocketbook and add to the feeling that you've done something."

There is no known drug which will cure a cold, one reason being that not all the viruses which cause the ailment have been found, the article said. Another reason is that no one has discovered an antibiotic that kills viruses as they do bacteria, it added.

"In the best scientific opinion today, a cold is a nose and throat infection that lasts about a week and is caused by an unknown number of viruses," it said. "To date, at least six of these viruses have been isolated."

When all the viruses have been found, it said, it may be possible to produce a preventive cold vaccine.

"The cold remedy racket owes much of its success to the fact that the cold is a self-limiting disease," the article said.

In other words, the symptoms will disappear naturally in a matter of days whether medicine is taken or not.

Nevertheless, Americans spent $309,350,000 for package cold and cough medicine off the drugstore shelf in 1959, according to one estimate.

The article offered the following advice on what to do when you catch cold:

—Stay at home and take other precautions to prevent spreading the virus to others.

—Go to bed and rest, keep covered, and avoid drafts.

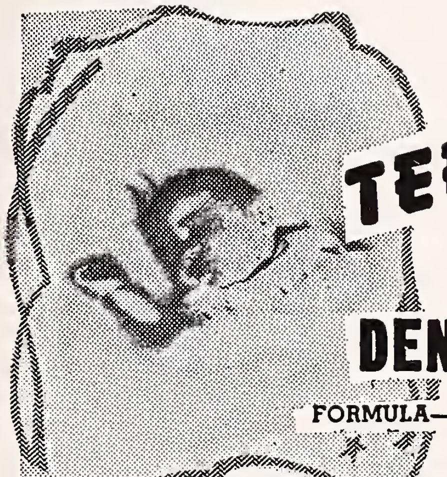
—Eat an adequate, well-rounded diet and drink plenty of fluids.

—Blow your nose gently when necessary.

—Use steam from a kettle or vaporizer to relieve nasal congestion.

—If your cold persists for more than a week, if you have more than one degree of fever for more than a day, or if you get more than three or four colds a year, see your physician.

The article was written by Theodore Berland.



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DENTOCAIN has also been useful in providing temporary relief for pain of adult toothache.

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Oral Anticoagulant Drugs

All of the newer oral anticoagulant preparations are claimed to be superior to the old standby, bishydroxycoumarin U.S.P. (Dicumarol) in such characteristics as rapidity of onset, ease of maintenance, or rapidity of dissipation of effect. What about these claims?

Of the experts consulted in the preparation of this report, some still prefer Dicumarol; some favor warfarin (Coumadin-Endo; Athrombin—Purdue-Frederick). Phenprocoumon (Liquamar-Organon) and acenocoumarin (Sintrom-Geigy) also have their adherents. Some experts, including many in Britain, prefer the indandione anticoagulants. Because of greater variability of response, none of those consulted favored ethyl biscoumacetate (Tromexan-Geigy). Adding up the evidence and the opinions, the editors of *The Medical Letter* agree with those experts who find no sound basis for singling out any one of the drugs for therapeutic superiority. (Coumadin has the advantage of being the only oral anticoagulant that is also available in stable parenteral form.) On one point there is wide agreement: if the doctor is thoroughly familiar with any one of the drugs and is able to achieve good control with it, he should not change to another drug.

Onset of Effect—Rapid onset of effect is a desirable attribute in an oral anticoagulant, but none of the oral drugs act with sufficient rapidity to eliminate the initial use of heparin for prompt anticoagulation. One of the disadvantages of Dicumarol with conventional doses (300 mg. the first day and 200 mg. the second day) has been the long induction period. With a larger first-day dose (600 mg.), more rapid induction of peak levels can safely be achieved (T. Rodman, et al., *Am. J. Med.*, 27:415, 1959). (These authors studied Dicumarol, diphenadione (Dipaxin-Upjohn), warfarin, and phenindione (Hedulin-Walter; Danilone-Schieffelin; Indon—Parke-Davis), and they conclude that ". . . none of the four drugs . . . appears to have enough advantages over the others to be recommended as the . . . agent of choice.")

The importance of quick dissipation of effect, an advantage claimed for some of the newer agents, is diminished by the ability of vitamin K_1 to restore prothrombin activity promptly should the need arise. As a matter of fact, slow dissipation may be a virtue in some circumstances. The prime need with any preparation is for predictable effect on prothrombin time, at least in the same patient, and for uniform effect from day to day. In this respect no one drug appears to be consistently superior. The variability of response *with any drug* may be in some way related to variations in the patient's capacity to produce prothrombin, proconvertin and other coagulation factors. Occasionally a patient will show an unusual bleeding tendency, even when the prothrombin concentration is within the therapeutic range. In such patients, who may be difficult to manage with any drug, coagulation studies may indicate a deficiency of various blood factors. Periodic checks are necessary whenever there is suspicion that other deficiencies besides prothrombin are developing.

Whichever drug is used, frequent determinations of prothrombin time by a reliable laboratory are essential to determine the dosage required for adequate, smooth response, and to minimize the hazard of bleeding. A patient on anticoagulant therapy should carry with him at all times five mg. oral vitamin K_1 tablets (Mephyton-Merck). If slight bleeding occurs, 2.5 to five mg. will return the patient to the therapeutic range in about 12 hours. Then anticoagulant therapy is resumed as before. If more marked bleeding occurs, 20 mg. should be taken orally and when the patient reaches the physician's office, Mephyton emulsion can be injected. If life-threatening hemorrhage occurs, fresh whole blood transfusions are also used. The appearance of blood in the urine may give the first warning of anticoagulant bleeding; it often occurs without underlying renal disease.

Contraindications and Side Effects—Anticoagulant drugs are contraindicated in (1) blood dyscrasias with bleeding tendencies; (2) hepatic or renal insufficiency; (3) severe hypertensive disease; (4) ulcerative lesions of the gastrointestinal tract; (5) subacute bacterial endocarditis; (6) threatened and incomplete abortions; (7) obstetric cases near term; (8) before surgery of any kind. The patient with uncontrolled congestive heart failure may be particularly difficult to control and sensitive to the toxic, bleeding effects of anticoagulant drugs. Dosage must be controlled with special care in patients who are receiving large doses of salicylic acid derivatives, phenothiazines, barbiturates, antibiotics, corticosteroids and ACTH. Long-term therapy should be employed only in patients who can fully cooperate and understand the risks of the disease and of the therapy. With the coumarin derivatives, occasional side effects include vomiting, diarrhea, urticaria and maculo-papular eruptions. Indandione derivatives also have side effects, including sensitivity reactions (such as diarrhea, purpura and alopecia); a number of cases of agranulocytosis have also been reported. Except with patients who are sensitive to coumarin anticoagulants, it is doubtful that the indandiones have advantages over the coumarins which offset the possibility of serious side effects.—*Reprinted from The Medical Letter on Drugs and Therapeutics, New York, N.Y.*

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 FEBRUARY, 1962 NUMBER 2

Allan J. Ryan, John Curry, and Henry Eisenberg	**Castration Following Radical Mastectomy For Breast Cancer**
N. William Wawro	**Experience With Catheter Suction Drainage In Major Soft Tissue Wounds**
Harold W. Schell	**Chemotherapeutic Palliation Of Cerebral Metastases From Pulmonary Carcinoma**
Thomas J. Donovan, I. A. Sloan, and W. P. C. Clason	**Principles Of Perfusion At Normothermic And Hypothermic Levels**
Robert N. Hamburger	**Regulating The Thyroid Intake In A Cretin: Limitations Of Clinical Criteria**
Beginning in this issue	**Abstracts Of The Opinion Survey Report**

U.C. MEDICAL CEN
FEB 20 1962
San Francisco, 22

Efficacy of propionyl erythromycin and its lauryl sulfate salt in 803 patients with common bacterial respiratory infections.

Tonsillitis* 92.3% 235 patients

Acute Streptococcus Pharyngitis* 88.3% 317 patients

Bronchitis* (Bacterial Complications) 95.3% 85 patients

Pneumonia* 88.6% 166 patients

*References available on request.

works to speed recovery

The usual dosage for infants and children under twenty-five pounds is 5 mg. per pound every six hours; for children twenty-five to fifty pounds, 125 mg. every six hours. For adults and children over fifty pounds, the usual dosage is 250 mg. every six hours. In more severe or deep-seated infections, these dosages may be doubled.

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a therapeutic
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Often recurrent...often resistant to treatment, urinary tract infections are among the most frequent and troublesome types of infections seen in clinical practice.[1,2] In such infections, successful therapy is usually dependent on identification and susceptibility testing of invading organisms, administration of appropriate antibacterial agents, and correction of obstruction or other underlying pathology.

Of these agents, one author reports: "Chloramphenicol still has the widest and most effective activity range against infections of the urinary tract. It is particularly useful against the coliform group, certain Proteus species, the micrococci and the enterococci."[1] CHLOROMYCETIN is of particular value in the management of urinary tract infections caused by *Escherichia coli* and *Aerobacter aerogenes*.[3] In addition to these clinical findings, the wide antibacterial range of CHLOROMYCETIN continues to be confirmed by recent *in vitro* studies.[4-6]

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References: (1) Malone, F. J., Jr.: *Mil. Med.* 125:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* 34:187, 1959. (3) Ullman, A.: *Delaware M. J.* 32:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* 108:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* 10:694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* 11:392, 1960.

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1. Barden, F. W., et al.: J. Maine M. A. 46:99, 1955.
2. Ford, R. A., and Blanchard, K.: Journal-Lancet 78:185, 1958.

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Castration Following Radical Mastectomy For Breast Cancer

A Preliminary Study

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DISCUSSION continues to rage in the medical literature regarding the best approach to improving survival in the treatment of breast cancer. In a recent publication concerning experience in Connecticut with this problem it was indicated that radical mastectomy was superior to simple mastectomy as a primary treatment for patients with Stage I and Stage II disease. The addition of postoperative radiation seemed to improve five-year survival in this group of patients.[8]

The results still leave a great deal to be desired, however. Extension of the radical mastectomy has been offered as an additional solution to this problem. Since this results in the inclusion of a greater number of patients in the radical mastectomy group than would otherwise be found if patients with a positive internal mammary node biopsy were excluded from this procedure as suggested by Haagensen,[4] survival figures so far published have not been greatly improved.

Palliation following castration in patients with advanced breast cancer has been observed for over sixty years. More recently, bilateral adrenalectomy and hypophysectomy have been added to surgical methods of treatment with some gratifying results. Good response to the administration of male hormone and its derivatives, and, in the post-menopausal patient, to estrogen has tended to confirm the belief that the growth of many breast cancers is directly dependent on a hormonal stimulus, primarily that provided by estrogen.

For reasons which are not entirely clear, prophylactic castration, either by surgical means or by irradiation, although it was recommended at the same time that the therapeutic effects of castration in advanced cases of breast cancer was first noted, has never become popular in this country. This may be partly due to the fact that several standard texts have carried the statement, which is without any known basis of fact, that it is of no value, even in the pre-menopausal patient. Careful examination of the evidence is long overdue.

Previous Reports on Castration

Schinzinger [11,12] (quoted by Treves) writing in 1889 and 1905 suggested castration of all women still actually menstruating as soon as the diagnosis of breast cancer was made. He did not report any results of such a procedure. Beatson[1] (quoted by Treves) advocated and carried out therapeutic castration combined with administration of thyroid beginning in 1896. Many reports followed on the treatment of recurrent and inoperable mammary cancer by oophorectomy. The results reported indicated that palliation of varying degrees was achieved.

This study was partially financed by a grant from the American Cancer Society, Connecticut Division, and assisted by Joan Campbell, Statistician.

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A recent report by Wilson et al[15] in 1958 indicated exacerbation of advanced metastatic breast cancer in four patients following bilateral oophorectomy. Three of the four patients were post-menopausal, however. The fourth patient had shown a positive estrogen stimulation test. Hypophysectomy was eventually carried out on all four, but only one showed a favorable response. This report stands virtually alone in reporting a predominantly adverse response to castration.

There are very few reports of series of patients with breast cancer who have been subjected to radical mastectomy and castrated by surgery or irradiation before evidence of distinct metastases was observed. Considering the tremendous volume of material in the medical literature on the subject of breast cancer, this is rather surprising.

Smith and Smith[13] (1953) reported on 739 patients treated at the Free Hospital for Women, Brookline, Massachusetts between 1905 and 1946. Sixty of these patients had had their ovaries removed before their mammary cancers developed or at the time of mastectomy or before recurrence appeared. Eleven of these women had had their menopause before ablation of their ovaries. The castrated patients demonstrated higher survival rates after radical and simple mastectomy than those patients who still had their ovaries. The difference was particularly significant when patients in both groups who demonstrated axillary metastases at operation were compared.

Prophylactic irradiation of the ovaries was carried out on 41 patients in the same series. The results appeared to fall between the group of surgical castrates and the controls but were not significant because of the small number of patients in the sub-groups.

Treves and Holleb[14] (1958) described the survival experience in 549 cases of histologically proven breast cancer in patients 35 years of age or younger seen at the Memorial Center for Cancer in New York from 1937 through 1949. In the operable group, 49 patients had surgical castration following treatment for breast cancer at a time when there was no clinical evidence of recurrence. "The vast majority" of the remaining (? operable) patients received "pelvic radiation to suppress ovarian function." There was no difference in the 5 year clinical cure rate where axillary nodes were found uninvolved (60 vs. 62.9 per cent) but, when axillary nodes were involved, the five year clinical cure rate was 8.3 per cent higher (30.7 vs. 22.4 per cent).

Paterson[6] (1959) reported on 747 patients treated surgically for breast cancer at the Holt Radium Institute in Manchester from 1951 through 1958. Half were selected at random for radiation castration. Five year crude mortality in the group treated by functional irradiation sterilization was 42 per cent compared to 51 per cent in the control group.

Rosenberg and Uhlmann[7] (1959) reported observations on 200 patients less than 50 years of age who had undergone radical mastectomy for breast cancer and who had no evidence of clinical spread of cancer beyond the axillary nodes at the time of surgery at the Michael Reese Hospital in Chicago from 1942 through 1957. Seventy-eight patients underwent prophylactic castration, twelve by bilateral oophorectomy and 66 by irradiation of the ovaries. Fifty-nine per cent of these survived 5 years as against 36 per cent of the 122 patients who were not castrated. The castration effect was particulary favorable in the group over 40 years of age where the survival rate was 68.8 per cent. Among 66 women who died within 5 years after mastectomy, survival of the castrates was longer than of the controls.

Schönbauer and Schmidt-Ueberreiter[9,10] observed 205 patients who had had radical surgery for breast cancer between 1941 and 1951. At the time of the latter of their two publications 101 patients were still living and only 16 had presumably active ovaries. Among the 104 who had died, 85 still had functioning ovaries at the time of death.

The occurrence of metastases during a period of three to five years observation following radical mastectomy was lower in a group of pre-menopausal women who were castrated by Hadfield and Holt[5] than in the non-castrated group.

Dargent[2] (1949) found that among 2,000 patients with cancer of the breast, only 32 (1.6 per cent) occurred in women who had been previously castrated. These women had been castrated between the ages of 28 and 71. Their cancers were discovered between the ages of 35 and 85. The interval between the date of castration and discovery of breast cancer varied from two months to 24 years. In only 9 instances was it less than 5 years, however. 23 of these patients were subjected to radical mastectomy. One patient was not followed. 24 of the total died of cancer. 5 of these survived 5 years or more. Of the seven living patients survivals ranged from 3 to 22 years and 4 had lived 10 years.

The Connecticut Experience

This study involved cases of histologically proven female breast cancer, diagnosed from 1949 through 1953 and treated by radical mastectomy, in seven of the largest Connecticut hospitals. Excluded from the study were cases in which the stage of disease at diagnosis was described as other than Stage I (localized) or Stage II (regional), and cases in which the age of the patient at diagnosis was unknown.

Table I

Distribution by age, pregnancy, and castration status of cases of breast cancer receiving radical mastectomy as primary treatment. Seven hospitals, Connecticut, diagnosis years 1949-1953.

	AGE UNDER 55		AGE 55+	TOTAL
	NOT PREGNANT AT DIAGNOSIS	PREGNANT AT DX.		
All Cases	644	12	612	1268
Prophylactic Castration	72	8	6	86
Surgery	31	7	4	42
X-ray	15	—	—	15
X-ray insufficient	26	1	2	29
Castration Before Mastectomy	21	—	21	42
Surgery	16	—	18	34
X-ray	5	—	3	8
Therapeutic Castration	67	3	7	77
Surgery	44	3	4	51
X-ray	18	—	2	20
X-ray insufficient	5	—	1	6
No Castration	484	1	578	1063

This resulted in a total of 1268 patients. Of these, twelve were pregnant at the time cancer was diagnosed and were excluded for purposes of comparisons, although reference is made to these cases in the discussion. The total of 1268 were classified by age and status with respect to castration. Age 55 was taken as the dividing line in order to make certain that the older group had passed through the menopause. The classification in respect to castration was made in four main groups: prophylactic castration; castration prior to mastectomy; therapeutic castration; and no castration. Those patients who were castrated were further classified according to the method of castration: surgery, X-ray, and a third group designated "X-ray insufficient," which will be explained below. Table 1 shows the classification into these groups.

Of the total of 1268 cases, 205 (16.2 per cent) had undergone some type of castration, either before the breast cancer was diagnosed, or after diagnosis. 86 of these 205 castrations (42 per cent) were categorized as prophylactic in nature; 77 (38 per cent) were considered to be therapeutic; and 42 (20 per cent) were performed prior to discovery of breast cancer. Although the women on whom castration was carried out in connection with treatment for breast cancer were predominantly (92-per cent) in the younger group as was to be expected, there were, nevertheless, thirteen patients aged 55 or over who received castration either as a prophylactic or a therapeutic measure. The patients who had undergone castration previous to diagnosis of cancer were equally divided in the two age groups at time of cancer diagnosis.

Although the total number of patients deliberately or previously castrated was only 205 (16.2 per cent of the total treated by radical mastectomy), it must be realized that only 644 (a little more than half) were under age 55. On the basis of present beliefs, it is only in this group that castration would ordinarily be considered as a prophylactic or therapeutic measure in breast cancer. At the present time, however, oophorectomy is being performed in connection with adrenalectomy or hypophysectomy in older as well as younger women. The 160 patients under the age of 55 who were castrated made up almost 30 per cent of that group. Only 14.4 per cent of the group under age 55 were subjected to prophylactic or had a previous castration. This would indicate that the idea of prophylactic castration in younger women with breast cancer was not popular in Connecticut during the period of this study (1949-1953).

Castration was performed by two methods in the prophylactic and theapeutic groups, surgical removal of both ovaries or irradiation delivered to the pelvis. A few of the patients in the group previously castrated had been treated by radium application through the vagina. Castration by surgery and by irradiation were about equally favored in the prophylactic group, but surgery predominated in the therapeutic group. The group of patients whose attempts at castration by irradiation were deemed "insufficient" had received doses ranging from 800R to 1500R (measured in air).

Cumulative survival rates were calculated by the actuarial method for each of several groups, based on data in the files of the Connecticut Tumor Registry through the year 1957. These rates were then adjusted for normal life expectancy by dividing by the cumulative survival rates of a "normal" population of women with an age distribution comparable to that of the group being considered.* This yields a ratio known as the survival ratio or the relative survival rate. The small number of persons in most of the groups makes survival figures of dubious value, as is indicated by the Standard Error of each,** but they may still be of interest although indicating little in the way of statistical surety.

One, three, and five-year cumulative survival ratios for the cases under age 55 are shown in Table II, together with the Standard Errors of the five-year

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*Figures for white females, U.S., were used. *United States Life Tables 1949-1951,* Vital Statistics, Special Reports Vol. 41, no. 1, National Office of Vital Statistics, Public Health Service, U.S. Dept. of HEW.

**Generally speaking, the smaller the number of cases, the larger the Standard Error. Standard Errors were calculated by the method devised by Greenwood and further described by Ederer, "The Standard Error of a Survival Ratio," Methodological Note No. 6, End Results Evaluation Section, CCNSC, NCI, Bethesda, Md.

Table II

One, three, and five-year cumulative survival ratios, standard errors of the five-year ratio, and t-values, for various groups of breast cancer cases receiving radical mastectomy as primary treatment. Ages under 55. Seven hospitals. Connecticut, diagnosis years 1949-1953.

	SURVIVAL RATIO				
	1-YR.	3-YR.	5-YR.	S.E.	T
1. All Cases	94.4	75.5	65.5	2.0	—
2. Prophylactic Castration	92.0	81.1	72.5	5.8	1.15
a. Surgery	90.6	81.1	71.9	9.2	0.68
b. X-ray	87.0	67.4	59.5	13.4	0.44
c. X-ray Insufficient	96.5	89.1	80.8	8.5	1.76
d. All X-ray (b. + c.)	93.0	81.0	72.7	7.6	0.91
3. Castration Before Mastectomy	95.7	82.3	77.4	10.0	1.17
a. Surgery	94.2	82.6	76.0	11.7	0.88
b. X-ray*					
4. Groups 2 & 3 Combined	92.8	81.3	73.6	5.0	1.50
5. Therapeutic Castration	95.8	73.8	53.4	6.3	1.83
a. Surgery	100.3	89.4	67.9	7.4	0.31
b. X-ray	89.2	50.5	34.0	11.3	2.74
c. X-ray Insufficient*					
d. All X-ray (b. + c.)	87.2	43.9	26.6	9.3	4.09
6. No Castration	94.6	74.6	65.8	2.3	0.14

*Only five cases in each of these groups.

ratios. The five-year survival ratio for the total under-55 series is 65.5 per cent; that for individual groups ranges from 34.0 per cent to 80.8 per cent.

The question now is, whether these observed differences in survival are different enough to be reasonably certain that a given treatment is likely to result in increased (or decreased) survival. Are the differences due to random sampling, or are they large enough so they cannot be accounted for by chance? If the differences are not to be attributed to chance, are they perhaps due to a difference in selection of patients for given treatments? The t-test of significance of differences between two groups was used. In each comparison, one group is the total series, including castrated and non-castrated, and the other is the group undergoing the treatment in question, and the comparison is made between the pair of cumulative 5-year survival ratios. An obtained t value of 1.64 indicates that the observed difference, or a greater one, would be likely to arise one time in ten by chance, a t value of 1.96 indicates a one in twenty chance, and a t value of 2.33 a one in fifty chance. Usually the .05 level of probability (t equals 1.96) is accepted as showing a statistically significant difference, with the difference being regarded as more highly significant as the value of t increases.

It will be seen from Table II that by these statistical criteria, we have only one group which differs significantly from all cases. This is the group which had x-ray castration as therapeutic treatment; the five-year survival ratio of 34.0 per cent is only about half that of all cases together (65.5 per cent). The group of all therapeutic treatments, with a survival ratio of 53.4 per cent, approaches the level of significance. Two other groups, with survival ratios better than the series as a whole, approach the significance level: the combination of all prophylactically and previously castrated women, with a survival ratio of 73.6 per cent, and the group receiving an "insufficient" prophylactic dose of radiation to the ovaries, with a survival ratio of 80.8 per cent.

It is fruitless to calculate survival rates of the even smaller groups which would be necessary to obtain more comparable groups. That is, we should be able to compare groups similar not only in age, but in stage of disease, histological grade, etc., in order to determine as clearly as possible that any observed differences in survival are due to treatment, and not to selection of cases. For example, it may be that prophylactic x-ray castration is more likely to be used for patients with a poorer prognosis, because of extent of disease, than is prophylactic surgical castration. That there is a significant difference in survival between Stage I and Stage II cases has been previously acknowledged,[3] and can be seen in our series where there are sufficient cases to assure reliability (see Table IV). The 484 cases under age 55 who received no castration have a 5-year survival ratio of 65.8 per cent. They happen to be equally divided into Stage I and Stage II. The five-year cumulative survival ratio for Stage I cases is 86.4 per cent; for Stage II it is 45.4 per cent. This is a highly significant difference.* Although there may be some difference of opinion in staging breast cancer, and various definitions of Stage I and II may seem to overlap, judged by differences in survival time there is a definite distinction between the two groups. A similar distinction must be made in histological grading (see Table IV). Of the no-castration group under age 55 which were graded I, II, and III the following 5-year survival ratios are shown for grade I 89.1 per cent, for grade II 64.8 per cent and for grade III, 50.6 per cent. These differences are also statistically highly significant.**

*By the t-test the difference between stage I and the total of stage I-II yields a t value of 6.1; between stage II and the total the t value is 5.0. Both show that the observed difference in survival could not be attributed to chance and must represent a real difference in stage.

**Histological grading, like staging, is subject to difference of opinion and of system. "Grade IV" is used by some to indicate the most malignant grade, but because it has been used on many records as a "grade not stated" category, it is not possible to assume any reasonable consistency for Grade IV and thus figures are not given here.

TABLE III

Distribution by stage and grade for various groups of breast cancer cases receiving radical mastectomy as primary treatment. Ages under 55. Seven hospitals, Connecticut, diagnosis years 1949-1953.

	STAGE		GRADE			
	1	*2*	*1*	*2*	*3*	*(4)*
1. Prophylactic Castration	20	52	3	31	14	24
Surgery	11	20	2	12	5	12
X-ray	3	12	—	7	5	3
X-ray Insufficient	6	20	1	12	4	9
2. Castration Before Mastectomy	10	11	—	7	8	6
Surgery	8	8	—	6	7	3
X-ray	2	3	—	1	1	3
3. Groups 1 & 2 Combined	30	63	3	38	22	30
4. Therapeutic Castration	29	38	2	29	23	13
Surgery	22	22	2	20	13	9
X-ray	4	14	—	6	8	4
X-ray Insufficient	3	2	—	3	2	—
5. No Castration	242	242	34	198	125	127

When we break down the various castrated groups under age 55 by stage and grade distribution (Table III) some interesting differences appear, although the numbers of cases involved are too small to count on the validity of these differences. As to stage, it appears that there may be some selection involved in women given prophylactic castration, since a considerably larger proportion are classified as stage II than stage I (72 per cent vs. 28 per cent). The proportion in each stage is more nearly evenly divided in the other two main castrated groups (therapeutic and previously castrated) and is exactly even in those receiving no castration. One might therefore expect that, given groups comparable in stage of disease, prophylactic castration would produce better survival results than is indicated in the survival ratios observed.

As a matter of fact stage at diagnosis appears to be the most important single factor in prognosis of patients treated by radical mastectomy — more important than whether or not castration was added as prophylactic treatment. The difference between survival ratios of stage I and stage II prophylactically castrated cases is considerably greater than that between stage I prophylactically castrated and stage I cases with no castration. The five-year survival ratios by stage are:

Prophylactic (all types)	— Stage I	— 96.9%	20 cases*
	Stage II	— 63.4%	52 cases
Therapeutic (all types)	— Stage I	— 62.1%	29 cases
	Stage II	— 46.8%	38 cases
No Castration	— Stage I	— 86.4%	242 cases
	Stage II	— 45.4%	242 cases

TABLE IV

Age adjusted five-year survival ratios, and number of cases, of radical mastectomy patients not receiving castration. Two age groups, by stage at diagnosis and by grade at diagnosis. Connecticut 1949-1953.

	AGE UNDER 55		AGE 55 AND OVER	
	NO. OF CASES	SURVIVAL RATIO	NO. OF CASES	SURVIVAL RATIO
All cases	484	65.8	578	65.5
Stage 1	242	86.4	273	83.0
Stage 2	242	45.4	305	49.9
Grade 1	34	89.1	23	90.0
Grade 2	198	64.8	260	69.5
Grade 3	125	50.6	136	53.0

In considering those cases given therapeutic castration, it must be remembered that the stage given is that determined at diagnosis of the breast cancer. Castration for therapeutic reasons, presumably because of metastases, took place at a later time. The median length of time elapsing between mastectomy and therapeutic castration in stage I cases was four years; for the stage II cases it was a little less than two years.

The importance of the histological grade of malignancy has also been shown to have an important bearing on prognosis of breast cancer cases. This is again borne out by the five-year survival ratio figures for the no castration group, the only one in the present study with sufficient number of cases to yield meaningful results (see Table IV). The small number of cases for any one grade in the breakdown by treatment, and the substantial proportion falling in the amorphous grade IV, make it difficult to draw any definite conclusions concerning the selective factor of grade in the observed differences in survival. The proportion of cases designated as grade II, the largest grade group, does not differ appreciably among the prophylactic, therapeutic, and no-castration groups. There would appear to be a smaller chance that the observed survival figures are biased by selection on the basis of grade than they are by stage.

TABLE V

Median ages at diagnosis of breast cancer of two age groups, pre-menopausal (under 55) and post-menopausal (age 55 and over) and of both groups combined classified by treatment supplementary to radical mastectomy.

TYPE OF TREATMENT	ALL AGES	UNDER 55	55 AND OVER
Prophylactic castration	43	42	61
Castration previous to diagnosis	55.5	48	61
Age at castration		44	47
Therapeutic castration	40.5	40	62
No castration	56	46	64
All cases	54	45	64

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*Only one of the 20 patients had died as of the date of study, and she died two years after mastectomy and surgical castration, of a second cancer (rectum) without having any further evidence of the breast cancer.

Castration as an adjunct to radical mastectomy logically concerns those patients who have not yet passed through menopause. In the present study, the age of 55 was taken as the maximum age of this group. Median ages at diagnosis are shown in Table V. There were six patients in the older age group who underwent castration classified as prophylactic. Four, whose ages were 56, 56, 57 and 61, and who were all classed as stage I, were surgically castrated. All were alive at last contact, three having survived more than five years. One patient, aged 61 and classed as stage II, was given an "insufficient" dose of x-ray and was still alive with more than five years survival. Another, aged 86 at the time of mastectomy and "insufficient" x-ray castration, died without evidence of cancer at the age of 90. Therapeutic castration by surgery was performed of four patients in the older group, aged 59, 62, 63, and 78. One died three and a half years after mastectomy, and three were alive, with survival time of more than five years, at last contact. Two patients, aged 59 and 67, received therapeutic castration by x-ray; the younger died two years after mastectomy, and the older was alive as of last contact, four and a half years after mastectomy. One 58 year old woman received an "insufficient" dose of x-ray for therapeutic castration more than five years after mastectomy, and died several months later.

That there is little difference in survival outlook between younger and older groups of women with breast cancer has been previously reported.[8] The present study shows that there is little difference in survival ratios between groups, comparable in stage and in grade, of pre-menopausal (under 55) and post-menopausal (55 and over) patients receiving radical mastectomy but no castration (Table IV).

The forty-two patients who had undergone castration before diagnosis of breast cancer were equally divided into the two age groups. The five-year survival ratio for the under-55 group was 77.4 per cent and the 55-and-over group was 81.9 per cent. Although the number of cases is too small to place much confidence in this similarity of survival figures, it does seem to suggest that prognosis has little to do with age, whether or not the ovarian function is involved.

The 42 cases of previously castrated patients form 3.3 per cent of the total of 1268 radical mastectomy cases. This is about twice the proportion found by Dargent.[2]

The median age at diagnosis of breast cancer of the 1268 women in the study was 54; for the cases with no castration it was 56, and for those previously castrated it was 55.5 (Table V). Median age at castration of the latter category was 46.5; with the younger group castration took place an average of four years before cancer diagnosis and with the older group castration took place an average of fourteen years before cancer diagnosis.

The increase in survival ratio of these previously castrated groups over the non-castrated groups (in either the younger or older ages) is not statistically significant because of the small number of cases. However, adding these cases to the prophylactically castrated groups allows a reduction in the standard error and a consequent increase in the t-value which is nearer the level needed for significance. This combined group of patients who had undergone castration either prior to or at the time of mastectomy, has a five year survival ratio of 73.6 per cent, about 8.1 per cent higher than the series as a whole.

The only group, by castration status, to show a better survival ratio than the previously-castrated patients, is that in which x-ray treatment has been categorized as prophylactic in purpose, but is considered by current standards to be insufficient to produce castration. The five-year survival ratio (if we may speak of such in a group of 26 cases) is 80.8 per cent, certainly a comparatively satisfactory figure, especially when it is noted that more than three-fourths of these cases are in stage II, compared, for example, to a little less than two-thirds of the prophylactic surgery cases which are in stage II. This high survival ratio is especially interesting when compared to that (59.5 per cent) observed in the group given x-ray treatment judged adequate for castration.

There were twelve women pregnant when breast cancer was detected. Of these, eight had prophylactic castration (one with "insufficient" x-ray and seven by surgery), three had therapeutic castration by surgery, and one was not castrated.

Of the prophylactic group, seven had died after survival of from four months (in the case of one given "insufficient" x-ray) to four years; median survival time was about one and a half years. One patient was alive, with survival time of four and a half years, at the end of the study period. The median age of these patients was 33 years. All were in stage II, except for one stage I case, that of the oldest in the group (41), who died a little less than a year and a half after mastectomy and surgical castration.

Two (aged 23 and 40) of the three patients receiving therapeutic castration died with survival times of 1 year, 8 months, and 2 years, 6 months. The third, aged 36 at diagnosis and 39 at castration, was still alive more than seven and a half years after diagnosis.

The one case pregnant when diagnosed who did not receive castration with a stage I ductal carcinoma, was alive at the end of the study period, with survival time of over six and a half years.

Discussion

This study was designed as a pilot survey to indicate whether the case records of patients with breast cancer in the Connecticut Cancer Register would provide a sufficient number of cases of prophylactic castration following radical mastectomy to indicate any significant difference in the survival of such patients from the non-castrated group. A projection of the observed number of 87 such cases obtained in a five year period from the cancer records of the seven largest hospitals in the state would indicate that in the 20 year period from 1935 through 1955 that there might be in the neighborhood of 400 such cases for all hospitals reporting. This would be a considerable number, although small in relation to the total number of breast cancers observed in these hospitals during that period (over 10,000). The answer is, then, that there is sufficient material to produce results of statistical significance.

In order to come to any certain conclusion regarding the value of prophylactic castration it is necessary to use statistical analysis because the number of variables found in the group of female patients with breast cancer is so great. Some are parous, some nulliparous. In some the cancer appeared during or shortly after pregnancy. The different stages of the disease and grades of the tumors as found at surgery, and the impossibility of absolute staging of the disease in any case make comparisons difficult. The reasons for selection for castration are uncertain and may be influenced by many factors other than purely therapeutic ones. The choice between surgical castration and irradiation of the pelvis is governed largely by extraneous considerations. Adequate criteria for determining whether radiation in each case was sufficient to produce effective castration (other than cessation of menstrual flow) are lacking in this group of patients. Some patients have been recipients of male or other hormonal therapy in addition to their primary surgery. We are unable to predict whether surgical castration in the post-menopausal patient who shows a high level of estrogen excretion in the urine will effect a lasting reduction in this level or not.

The finding that patients given therapeutic castration have an appreciably lower survival ratio than mastectomy cases as a whole is assumed to be because they are a selected group of cases whose course following mastectomy was unsatisfactory. It is not possible in the present study to test the hypothesis that therapeutic castration, for those patients developing metastases after mastectomy, increases survival time, since there is no comparable uncastrated group.

More to the purpose of this study is the observed improvement in survival ratios of those groups castrated previous to, or at the same time as, diagnosis of breast cancer and primary treatment by radical mastectomy. The number of cases involved was too small to produce statistically valid results. Some questions have been raised which might be clarified by study of a larger group of patients. Among these questions are:

1. Given comparable groups of patients, is there a real increase of survival time of the prophylactically castrated groups over those not so treated? In Stage I cases, for example, the observation was that prophylactic castration regardless of whether by surgery or x-ray, produced virtually 100 per cent five-year survival. If prophylactic castration were carried out on all Stage I cases, would the excellent survival ratio of the present small group of prophylactic cases be confirmed? Groups should be comparable with respect to the important criteria of stage and grade. Other factors which should be considered, but which were not a part of this study, are variables such as histologic type of cancer and supplementary treatment such as pre or post-mastectomy radiation therapy (other than to the pelvis) and, more important, additional hormone treatment. A finer breakdown of age groups, and more accurate information on time of menopause, should be attempted.

2. Is there any validity to the observed increase in survival of that group designated as "insufficient x-ray" over the no-castration group and over other forms of prophylactic treatment? Are present concepts of adequacy of dose necessary to produce radiation castration correct? Information in the hospital records on radiation dosage is inexact and unstandardized. An improvement in keeping and interpreting records of radiation treatment may be a necessary prerequisite to dealing with this question.

3. Which of the methods of prophylactic castration, surgery or x-ray, produces better results? Investigation of this question must necessarily involve the standardizing of definitions of adequacy of x-ray castration, and of reporting x-ray dosage.

4. Is there any benefit derived from therapeutic castration of patients developing metastases? The number of patients originally diagnosed as being in Stage I who subsequently required therapeutic castration for metastases indicates only the inadequacy of clinical methods in staging cancer. The five-year survival percentage of 67.9 is certainly very suggestive of the benefits to be obtained by surgical therapeutic castration, although the number of cases was very small. Adrenalectomy was carried out in only one patient in this group and there were no hypophysectomies. The survival rate

was very unfavorably affected by a number of patients who died within two months of castration, indicating that they may have been poor candidates for this procedure.

5. Is there any additional value in performing castrations in patients whose breast cancer is discovered during pregnancy or lactation? The fate of the small number of patients in this series with Stage II disease does not seem to be any better than that found by most other writers on the subject in both castrated and non-castrated patients. Is it even worthwhile to castrate these patients who are classified in Stage I? A larger group of cases would help to answer this question.

Conclusions

Prophylactic castration of patients with breast cancer who are pre-menopausal and who have been subjected to radical mastectomy requires urgent consideration and evaluation as a method of improving survival figures. There is good reason to believe from the pilot study of 120 patients out of a group of 1268 subjected to radical mastectomy as primary treatment who were castrated before or shortly after this operation, that significant improvements in survival can be achieved.

This belief is based on the finding that the figures for the castrated group of patients show a 5-year cumulative survival ratio of about 7 per cent better than for the non-castrated group, even though the number of cases is insufficient to allow us to attain the 5 per cent level of confidence. Obtaining larger numbers of cases will allow significant comparisons to be made between patients with different stages and grades of cancer based on clinical and pathologic evaluation.

Therefore, this study should be extended to include all hospitals in the state and to cover the entire period of activity of the registry from 1935 to the present so that all the expected 400 or more prophylactic castrations can be studied. The most exact results could be expected to be obtained in those who had castration performed by the ablation of both ovaries, since there is considerable question whether sufficient x-ray is given in many cases to render the ovaries non-functional.

The greatest need at the present time is for the establishment of cooperative forward-looking studies which will select alternate patients who fulfill the criteria for radical mastectomy and perform surgical castration very shortly after the primary surgery on each alternate one. Patients who have entered upon a natural menopause could be added to this group and treated in similar alternate fashion if they demonstrate estrogen excretion levels above normal.

REFERENCES

1. Beatson, G. T.: On Treatment of inoperative cases of carcinoma of mamma; suggestion of new method of treatment, with illustrative cases. Lancet 2:104-107; 162-165, 1896.

2. Dargent, M.: Carcinoma of the Breast in Castrated Women. Brit. M. J. 2:54-56, July 9, 1959.

3. Griswold, M. H., Wilder, C. S., Cutler S. J. and Pollack, E.S.: Cancer in Connecticut 1935-1951. Connecticut State Department of Health, Hartford, Conn., 1955, pp. 45 and 46.

4. Haagensen, C. D.: Diseases of the Breast, Philadelphia, W. B. Saunders Company, 1956, p. 584.

5. Hadfield, G. J. and Holt, J. A. G.: The Physiological Castration Syndrome in Breast Cancer, Brit. M. J. 2:972 (Oct. 27) 1956.

6. Paterson, R.: Reported at 75th Anniversary Cancer Symposium at Memorial Center for Cancer and Allied Diseases, New York City, N. Y., 1959.

7. Rosenberg, M. F. and Uhlmann, E. M.: Prophylactic Castration in Carcinoma of the Breast. A.M.A. Arch. Surg. 78:378-379, March, 1959.

8. Ryan, A. J., Griswold, M. H., Allen, E. P., Katzenstein, R., Greenberg, R., Keogh, J., and Wilder, C.: Breast Cancer in Connecticut, 1935-1953, J.A.M.A. 167:298-307 (May 17), 1958.

9. Schönbauer, L., and Schmidt-Ueberreiter, E.: Nochmals zur Frage der Kastration beim Carcinoma mammae, Wien. Klin. Wchnschr. 67:847, (Oct. 28) 1955.

10. Schönbauer, L., and Schmidt-Ueberreiter, E.: Ist die Kastration beim Carcinoma mammae berechtigt? Wien. Klin. Wchnschr. 66:628 (Sept. 3), 1954.

11. Schinzinger, [A.]: Uber Carcinoma mammae. [Abstr.] Centralb. f. Clin. 16:55-56, 1889.

12. Schinzinger, [A.]: Das Karzinom der Mamma. Munchen med. Wchnschr. 52: 1724-1725, 1905.

13. Smith, G. V., and Smith, O. W.: Carcinoma of the Breast. Results, Evaluation of X-radiation, and Relation of Age and Surgical Castration to Length of Survival. Surg., Gynec. and Obst. 97:508-516, Oct. 1953.

14. Treves, N., and Holleb, A. J.: A Report of 549 Cases of Breast Cancer in Women 35 years of age or younger. Surg., Gynec., and Obst. 107:271-283, Sept. 1958.

15. Wilson, R. E., Jessiman, A. G., and Moore, F. D.: Severe Exacerbation of Cancer of the Breast After Oophorectomy and Adrenalectomy. New England J. Med. 258:312-317 (Feb. 13), 1958.

Experience With Catheter Suction Drainage In Major Soft Tissue Wounds

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Introduction

In recent years there has been increasing interest in the use of suction catheter drainage of large soft tissue defects to improve wound healing and patient comfort. Reports from various authors[1-6] have expressed enthusiasm for this technique and its adoption has been urged. However, the details of the management of such large wounds utilizing this technique have varied with respect to use or absence of covering dressings; size, number and type of catheter; length of stay of suction catheters in the wound, and more recently, even the manner of producing negative pressure

While the majority of surgeons at least cover their wounds with a light layer of sterile gauze and utilize either sterile or plastic catheters (#14-28), removing them from second to seventh post-operative day, as circumstances of the quantity of drainage dictate, some changes in the manner of creating suction have been proposed. The use of either fixed wall or stationary pump suction has been standard with the disadvantages of immobilizing the patient except for intervals when suction unit was disconnected to permit ambulation. The recent suggestion[7] of utilizing portable small blood bank flasks with induced vacuum and attached to the wound catheters, permits early ambulation without sacrificing the benefits of constant negative pressure.

Disadvantages of the standard, large, bulky pressure dressing with soft rubber drain consist of varying discomfort to the patient; they are time consuming for the surgeon at application and at subsequent dressings; and the voluminous dressing materials are increasingly costly to the hospital. Further excessive pressure in region of an airway (tracheostomy), immobilization of the abducted arm in radical mastectomy, and the malodorous drainage represent added disadvantages.

On the other hand, the negative pressure induced by continuous suction on a multiple fenestrated sterile, semi-rigid rubber or plastic catheter effectively removes blood, serum and lymph from the large raw surfaces of the wound, permitting atmospheric pressure to obliterate a dead space and allows adherence of the overlying large skin flaps to the underlying granulating surface of the wound. Thus, some disadvantages of ineffective pressure dressings consisting of seroma, hematoma, skin necrosis and secondary wound infection have been decreased by this continuous suction technique.

Material

Approximately two years ago, it was elected to utilize the technique of continuous wound suction drainage on a series of 117 private patients undergoing radical soft tissue surgery for neo-plastic disease resulting in large soft tissue surface defects. Table I documents the material used in this study.

Table I

CASES	NUMBER
Radical Mastectomy	41
Radical Neck Dissection	27
Monoblock Resection with Radical Neck	19
Radical Groin Dissection (with Graft — 2)	9
Radical Vulvectomy with Bilateral Groin Dissection	3 (b)
Miscellaneous	12
Total Wounds	120

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The radical mastectomy, neck and groin dissections are the standard procedures usually carried out for the particular neoplasm. In some of these split thickness skin grafts have been used to replace the removed skin or minimize skin tension. The composite monoblock resections described in this series includes the primary neoplasm (tongue, floor of mouth, larynx, external auditory canal, thyroid and parotid) with or without adjacent mandible in continuity with the ipsilateral cervical lymph nodes, resected as a radical neck dissection. Radical vulvectomy is an extensive bilateral vulval resection in continuity with both inguinal-femoral lymph gland groups. Retroperitoneal lymph node dissection after division of inguinal ligament is added to this operation only for the groin containing clinically suspected and enlarged lymph nodes. The miscellaneous group is made up of large incisional herniae, radical axillary dissections, large soft tissue defects following removal of mesenchymal sarcomata, perineal defects, etc.

Technique

Upon completion of the surgical resection maximal hemostasis is assured and the wound is irrigated with saline. Cultures of the operative defect are then taken as part of this study. Two semi-rigid plastic or rubber catheters (#14-16) with multiple openings (5 mm. each) created for length of the wound are placed to drain the lateral and medial (neck, breast), or upper and lower (groin) portions of the wound, tacked to the underlying tissues with one or two fine absorbable sutures to prevent displacement. The catheters are then brought out through separate stab wounds. Careful avoidance of the line of skin incision, overlying skin graft, and major neurovascular structures is desirable in the placement of the catheters. Airtight closure of skin with absorbable sutures is desirable. 10-20 mm. Hg suction is then applied to the catheters resulting in prompt obliteration of the dead space, with resulting molding of the overlying skin flaps covering the contour of the wound. Vaseline gauze and a small sterile cotton dressing placed over the suture line completes the procedure.

Suction is applied to these catheters for three to six days. We have used the hospital wall suction unit and measure the daily output of wound drainage. As soon as the patient's condition permits, ambulation is encouraged. While up and walking, the catheters are clamped and re-connected to suction when the patient returns to bed. Rarely does the daily drainage exceed 100-150 cc. Generally, drainage decreases to 25-50 cc. by the third to sixth day at which time the catheters are removed and the fibrinous exudate or catheter clot is cultured.

Antibiotics, commonly Distrycillin® (combined penicillin and streptomycin), have been given during the post-operative period, even in the clean wounds. If the initial operative wound culture yields an organism which is sensitive to some other antibiotic, Distrycillin® is discontinued and the appropriate drug started. If primary wound healing continues, the patient is discharged and followed in the office. Occasionally, aspirations of wound seromas or tissue debridement are necessary in hospital or office. When pocketing, skin necrosis or infection are noted after catheter removal, immediate and appropriate steps are taken to convert the septic wound into a clean wound.

Results:

Table II summarizes the data relating to (a) the wound cultures at operation and on catheter removal, (b) character of the wound healing and (c) duration of stay in the hospital. 84 of 104 wounds were sterile at completion of operation. Twenty immediate operative wound cultures gave positive cultures, dominantly, hemolytic staphlococcus aureus, coagulase positive. However, on removal of

TABLE II

			WOUND CULTURE		WOUND HEALING		DISCHARGE DAY
OPERATION	NUMBER	OPERATIVE	P.O.	SERUM	NECROSIS	EDEMA	(MEDIAN)
Radical Mastectomy	41	31/2	20/17	7	3	4	8-16 (10)
(A) Without Skin Graft (29)							
(B) With Skin Graft (12)							
Monoblock Resection	19	14/5	6/13	2	2	1	10-16 (13)
Radical Neck Dissection	27	18/6	12/12	3	1	1	8-12 (10)
Radical Groin Dissection (13)	21	14/4	6/12	5	4	13	S. 8-13 (10)
(A) With Graft (2)							B. 12-21 (18)
(B) With Vulva (6)							
Miscellaneous	12	7/3	4/6	2	1	1	5-21 (15)
Total	120	84/20	48/60	19	11	20	

®—Registered name of the drug employed—in this instance, the combination of streptomycin and penicillin. (E. R. Squibb & Sons).

TABLE III

BACTERIA	OPERATIVE	POST-OPERATIVE
H. Staph Aureus Coag. +	8	34
H. Strep.	4	5
N.H. Strep.	3	6
Strep. Viridans	4	1
B. Coli	3	9
B. Pyocaneous	1	5
B. Subtilis	0	3
	—	—
Total	23	63

the catheters on the fourth to sixth post-operative days, despite antibiotic coverage, forty-eight wounds yielded sterile cultures and sixty wounds gave bacterial growth, dominantly hemolytic staphlococcus aureus. The majority of patients with positive wound cultures, however, did not present clinical evidence of local or systemic infection. There were four major wound infections, however, a radical neck, radical mastectomy and two radical groin dissections, prolonging hospital stay and requiring skin debridement and secondary drainage.

With respect to wound healing, there were nineteen seromas in the immediate post-operative period requiring single or multiple aspirations. Eleven wounds had minimal areas of skin necrosis requiring no secondary grafting. Thirteen lower limbs presented edema of a mild degree associated with groin dissections and seven arms had modest post-mastectomy swelling during the hospital stay. The average post-operative stay in this group of 117 patients was shorter for each category than was formerly noted when bulky pressure dressings with rubber tissue drainage were employed.

As noted in Table III, the predominant bacterial organism in the wounds was the hemolytic staphlococcus aureus, coagulase positive, though a variety of other bacteria were also cultured, indicating that the use of semi-rigid catheter drainage of wounds is not without some potential danger. It should be recalled that the majority of these patients had antibiotic coverage, generally Distrycillin,® for four to ten days in the post-operative period.

Conclusions

There is little doubt that the technique of suction catheter drainage of large soft tissue defects has several advantages to surgeon, patient and hospital when compared to the bulky pressure dressing technique. The observations derived from this series of 117 consecutive cases indicates that greater patient comfort, earlier mobilization and ambulation, less early and late edema of affected extremities, combined with higher percentage of wounds healing per primam, and earlier discharge from the hospital are the chief benefits to the patient and his surgeon. On the other hand, inadequate drainage by improper placement of catheters, premature removal or clotting within these tubes will permit accumulation of serum, lymph, blood and tissue debris in a sealed airtight wound affording excellent pablum for wound and skin surface bacteria which may be allowed entrance via the wick-like action of these catheters. Therefore, before utilizing this suction catheter technique, one should become familiar with the details of its technique and application. Further, it should be emphasized that this method of wound drainage is no substitute for those sound surgical principles necessary for good wound healing, i.e., careful skin preparation, gentle care of tissue, sharp dissection, adequate hemostasis, saline wound irrigations, coaptation of tension free flaps and use of finest suture material commensurate with its assigned function.

Anticipating introduction of bacteria into these wounds by the use of these catheters, cultures at operation for control, and on removal of the catheters revealed that while approximately one-fourth of these wounds at completion of operation grew bacteria, over one half (60 per cent) gave positive wound cultures on the post-operative day of catheter removal (3-6 days post-operative). However, the presence of bacteria in wound cultures is not usually synonyomus with clinical infection, locally or systemically. Only four major wound infections requiring tissue debridement and prolonging convalescence are recorded for this series. The ubiquitous heolytic staphlococcus organism was the predominant bacterium, either in pure culture or mixed with several others. Increased incidence of wound infections with this organism in the recent years of the antibiotic era has been reported[8,9] despite post-operative administration of prophylactic antibiotics.

It is planned to continue post-operative administration of antibiotics on the empirical basis that edema of arm and leg after radical mastectomy and radical groin dissection may be associated with an obvious or subclinical infection in the residual fat and lymphatics adjacent to the wound. If appropriate antibiotic coverage will minimize this complication, its expense and risk may be justified. No other complications were encountered using this technique of wound management.

Several patients in this series had a second mastectomy or neck dissection several years after the contralateral side was treated and were thus able to compare subjectively and objectively the former technique of bulky dressings and rubber tissue drain with the suction catheter management. Uniformly, the latter and more recent method won their approval over the former bulky, uncomfortable and malodorous pressure pack. Decrease in edema of arm and face, greater personal comfort, earlier ambulation and hospital discharge were gratefully acknowledged.

Summary

1. A private consecutive series of 117 major soft tissue wounds resulting from radical excisions of neoplastic disease in the head and neck, breast, groin, etc., managed by catheter suction drainage are recorded.

2. The technique is described with the necessary precautions to avoid complications.

3. Improvement in wound healing with minimal morbidity and earlier discharge from the hospital were noted.

4. Routine wound cultures at completion of operation and on removal of drains were carried out in the majority of cases.

5. Approximately twenty-five per cent of wounds at completion of surgery gave positive bacterial culture. Despite routine antibiotic coverage, about 60% of wounds in this series yielded bacterial growth from their tissue fluid and debris on the day of catheter removal. The dominant organism was hemolytic staphlococcus aureus, coagulase positive.

6. Patients exposed to both the former bulky pressure dressing and recent suction catheter drainage uniformly preferred the latter.

7. Our observations with this group lead us to recommend continued use of this method to improve wound healing, minimize patient discomfort, speed recovery and achieve economy of time in changing dressing and expense of materials.

BIBLIOGRAPHY

1. Raffl, A. B.: "The Use of Negative Pressure Under Skin Flaps After Radical Mastectomy, Ann. Surg. *136,* 1048, 1952.
2. Silvis, R. S., Potter, L. E., Robinson, D. W., Hughes, W. F.: "The Case of Continuous Suction Negative Pressure Instead of Pressure Dressing", Ann. Surg. *142,* 252, 1955.
3. Connolly, J. E.: "Prevention of Post-Operative Subcutaneous Fluid Collection by Suction", J.A.M.A. *151,* 1490, 1955.
4. MacDonald, I., Smith, G. K., Guiss, L. W. & DeWoss, E. V.: "Exposure and Suction Drainage in the Management of Major Dissective Wounds", S.G.O. *107,* 532, 1958.
5. Deaton, W. R., Jr., Clutts, G. R.: "Use of Negative Pressure As A Method of Draining Extensive Wounds", Am. Surgeon *23,* 278-280, March, 1957.
6. Vandenbos, K. Q., Hughes, C. W., Bowers, W. F.: "Use of Suction In Control Of Residual, Infected Or Draining Cavities, Tracts And Fistulas", Arch. Surg. *78* (6), June, 1959, 962-965.
7. Breslau, R. S., Pories, W. J., Schwartz, S. I., "A Portable Technique For The Maintenance Of Constant Sterile Post-Operative Wound Suction", Surgery *46,* Oct., 1959, 711-717.
8. Howe, C. W.: "The Problem of Post-Operative Wound Infections Caused By Staphlococcus Aureus", Ann. Surg. *146* (3), Sept. 1957, 384.
9. Shidler, F. P.: "The Routine Culture of Human Wounds", Am. J. Surg., *98* (2), Aug., 1959, 152-159.

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Chemotherapeutic Palliation Of Cerebral Metastases From Pulmonary Carcinoma

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PALLIATION of the symptoms of neoplastic cerebral metastases has been successfully accomplished in four patients at the Uncas on Thames Hospital. Therapy in each case consisted of an alkylating agent in combination with an adrenal corticosteroid. These brief case histories are reported as the results of gratifying treatment.

Case I

P.W. This 65 year old white male was admitted to the Uncas on Thames Hospital in June of 1958, and a pneumonectomy was performed for an undifferentiated carcinoma of the right lung. Postoperatively, he did quite well until he had a grand mal seizure in September of 1958, following which he developed severe headache, memory loss, and, finally, disorientation to time, place, and person. When readmitted to the Uncas on Thames Hospital on October 3, 1958, he was semicomatose. The retinal veins were engorged. There were no localizing neurological findings. He was critically ill and it seemed unlikely that he would live through the night. Lumbar puncture revealed a cerebrospinal fluid pressure of 75 mm. of water. The spinal fluid contained 10 lymphocytes per cubic mm. and the protein was 60 mgm. per cent.

The patient was given nitrogen mustard, 0.5 mgm. per kilogram of body weight, in one dose intravenously, and was started on prednisone, 30 mgm. daily. Within 48 hours, the patient showed dramatic improvement. His headache and confusion disappeared; he regained his appetite, and rapidly became fully ambulant. Some evidence of memory loss for recent events persisted.

He continued to do well about the hospital and was given week-end passes. On November 4, 1958, one month after institution of therapy, he was discharged home and did well until December 26, 1958, when he developed intestinal obstruction. He was readmitted and expired January 24, 1959, with this complication. Postmortem examination revealed obstruction of the transverse colon secondary to metastatic tumor, as well as widespread tumor in the liver, retroperitoneal nodes, mesentery, colon, and peritoneum. Twenty sharply-demarcated tumor nodules, about 1 cm. in diameter and yellow-grey in color, were found in the cerebrum. There was no evidence of cerebral edema at the time of death, and the brain retained its usual shape with no evidence of atrophy.

Case II

N.D. This 42 year old white female had a left pneumonectomy for adenocarcinoma of the lung in May of 1956 at the Uncas on Thames Hospital. She was readmitted on February 17, 1959, because of a convulsive seizure with complaints of severe frontal and occipital headaches, difficulty with her vision, and shaking tremor of her left upper extremity. Her facial expression was mask-like and she appeared chronically ill. On examination there was weakness of convergence, but no evidence of papilloedema. The visual fields were full by confrontation. There was a Parkinsonian-like tremor of the left upper extremity, with extensor rigidity. The deep tendon reflexes were hyperactive throughout and there was intermittent left ankle clonus. Plantar reflexes were normal. Lumbar puncture revealed a cerebrospinal fluid pressure of 100 mm. of water. Spinal fluid contained two white blood cells per cubic mm., and the protein was 250 mgm. per cent. Skull x-ray film revealed the pineal body displaced 6 mm. to the right, which was thought to indicate a space-occupying lesion on the left. EEG was consistent with a left, occipital lobe focus. No other evidence of metastatic disease could be found. The patient was given nitrogen mustard, 0.5 mgm. per kilogram of body weight, in one dose intraven-

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ously, and was started on prednisone, 30 mgm. daily. Following therapy, she improved quite remarkably and became ambulatory in one week. Her headaches and resting tremor subsided. In mid-April 1959, she complained of difficulty in swallowing, and fluoroscopic examination of the esophagus revealed almost complete obstruction in the middle third due to extrinsic pressure. Dilatation by esophagoscope was performed and the patient was able to eat once again. In early May, she developed left cerebellar signs and a sensation of flashing lights in the right lateral field of vision. Cerebrospinal fluid protein at this time was 50 mgm. per cent. She was given 45 mgm. of thiotepa in one dose intravenously, and there was a diminution in the visual hallucinations and left sided intention tremor. She then developed a severe cough, blood streaked sputum, left chest pain, and a right pleural effusion. Massive ascites and peripheral edema followed. The symptoms referable to the chest and the abdomen increased and did not respond to treatment and she expired on June 20, 1959. Postmortem examination revealed metastatic adenocarcinoma in the liver, kidneys, right lung, para-aortic lymph nodes, adrenal glands, ovaries, thyroid, breast, cerebrum, and cerebellum.

Case III

A.L. This 56 year old white male had a left upper lobectomy in another hospital in May of 1959 for adenocarcinoma of the lung. The patient remained well until July of 1959 when he noted the gradual onset of weakness in the right foot which ascended to involve the right leg and thigh. He also complained of generalized weakness and subsequently developed weakness in the right upper extremity. These symptoms were progressive over a two-month period until he became bedridden, increasingly irritable, and irrational. He was admitted to the Uncas on Thames Hospital on September 15, 1959. Physical examination revealed a right hemiparesis with increased deep tendon reflexes, and a questionable right extensor plantar response. There was no papilloedema. No definite evidence of skeletal metastases was found on x-ray examination, and skull x-ray film was unremarkable. Lumbar puncture yielded clear cerebrospinal fluid under normal pressure. The cerebrospinal fluid protein was 67 mgm. per cent and there were four red blood cells per cubic mm. but no white cells. On the basis of progressive involvement of the right lower extremity and then the right upper extremity over an eight week period, it was thought that a slowly expanding intracranial lesion was present. The patient was given nitrogen mustard, 0.5 mgm. per kilogram of body weight, in one dose intravenously, and 12 mgm. of triamcinolone daily. There was a remarkable return of function of his right extremities and he was able to walk with a cane five days after this therapy was instituted. He was discharged October 17, 1959.

He remained well until February, 1960, when symptoms gradually and progressively recurred. He again became bedridden, with a right hemiparesis and marked slurring of speech, and was readmitted March 28, 1960. Cerebrospinal fluid protein was 60 mgm. per cent and pressure was normal. Once again he was treated as before and with similar results. He was discharged April 25, 1960.

Case IV

This 64 year old white male had a right upper lobectomy for undifferentiated carcinoma of the lung in November, 1959, at another hospital. In March 1960, he developed a progessive left hemiparesis over a two-week period. He was studied at another hospital where cerebrospinal fluid protein was 86 mgm. per cent and cerebral arteriogram was indeterminate. He was discharged home March 18, 1960, and over the next three weeks developed further weakness of his left side, irritability, and a pronounced personality change. He was admitted to the Uncas on Thames Hospital April 8, 1960, in a state of extreme confusion with thick, unintelligible speech. Marked bilateral papilloedema was found. There was a left hemiparesis, with increased deep tendon reflexes and no plantar response on the left. Skull x-ray film revealed an osteolytic lesion in the parietal and frontal area. In view of the elevated cerebrospinal fluid protein reported at the other hospital and the severe bilateral papilloedema, no lumbar puncture was performed. He was treated with nitrogen mustard, 0.5 mgm. per kilogram of body weight, given intravenously in one dose, and prednisone, 30 mgm. daily. In 48 hours, he was much improved and well oriented. He became ambulant, with help, in one week. Three weeks after treatment, no neurological deficit was evident. Papilloedema had completely subsided. Lumbar puncture, performed four weeks after therapy had been instituted, revealed normal cerebrospinal fluid pressure with protein at 42 mgm. per cent. He was discharged home completely asymptomatic on May 27, 1960, after he had continued to do well on week-end passes.

Discussion

Metastatic brain disease is a serious and, usually, rapidly fatal complication of malignant neoplasms. Galluzzi and Payne[1] report that 25 per cent of 647 patients dying of carcinoma of the lung had proven cerebral metastases on complete postmortem examination. Cerebral metastatic lesions were present in 30 per cent of patients with undifferentiated carcinoma, 33 per cent of patients with adenocarcinoma, and in about 11 per cent of those patients with epidermoid carcinoma. In view of this high incidence of brain metastases in patients with pulmonary carcinoma, palliative therapy deserves thoughtful consideration.

Cerebral metastases are treated by various methods:

Chao et al,[2] have reported palliation in 24 of 38 cases of cerebral metastases using total brain irradiation techniques, and recommend this form of palliation therapy in all patients whose life expectancy is more than a few weeks.

Bakay[3] has recently reported a patient with a five-year survival after surgical extirpation of a solitary cerebral lesion, metastatic from a primary adenocarcinoma of the lung. Surgical attack on metastases in the brain is limited, as the lesions are most commonly multiple and may occupy vital areas.[4]

Alkylating agents and antimetabolites have been used by perfusion, using the internal carotid artery and internal jugular vein,[5] and thiotepa has been injected into the common carotid artery[6] with reported benefit. Localized hypothermic cerebral perfusion has been undertaken in two cases of metastatic brain disease with a three month survival in one of them.[7] These perfusion forms of therapy carry certain hazards and still must be considered in the stage of evaluation in intracranial lesions.

It is worthy of note that Kofman, et al,[8] reported favorable effects, lasting from weeks to several months, in patients with cerebral disease metastatic from primary neoplasms in breast, lung, uterus, and pancreas, from prednisolone therapy alone.

Each of these forms of therapy has its place in the management of this difficult problem.

It is not the purpose of this paper to suggest that chemotherapy is, in any way, a replacement to x-ray therapy or surgical attack on solitary lesions, but rather to point out that, in the presence of widespread disease, the use of chemotherapeutic agents may control some of the symptoms of intracranial metastases and thus make the terminal management of these difficult problems easier for both patient and physician. Each of the cases reported here had proven carcinoma of the lung; two were adenocarcinoma, and two were undifferentiated carcinomas. Two of the four patients have expired, and postmortem examination has confirmed the presence of metastatic brain disease. The clinical history and response to treatment in the other two would seem to lend weight to the diagnosis of cerebral metastases. At the time that each of the four patients was admitted to the Uncas on Thames Hospital with symptoms and signs of intracranial involvement, his or her death was considered imminent. It is important to note that the patients who expired both died of acute terminal illness produced by carcinoma in organs other than the brain.

It is interesting to speculate on the favorable response to therapy of intracranial lesions, while relentless progress of metastases elsewhere in the body continues.

As the calvarium is a closed, unexpandable space, even small lesions may produce distressing sensory and motor symptoms, cause a rapid rise in intracranial pressure, or occupy a critical location so as to interfere with vital function. The palliative effect achieved in these cases is probably related to the small volume of the cerebral tumor mass. Even slight reduction in the size of a nodule or diminution of edema in the area of the tumor may be sufficient to render the lesions less capable of producing symptoms.

Combined therapy was used in these patients. Adrenal cortical steroid therapy was instituted in this group of patients because the situation was considered so desperate. The alkylating agents were given for their antitumor effect. Whether either of these agents alone would have elicited the same beneficial response is unknown.

Summary

1. Successful palliation in four patients with cerebral metastases from pulmonary carcinoma, using a combination of an alkylating agent and an adrenal cortical steroid has been reported.
2. Whether the combination of alkylating agents and adrenal cortical steroids is superior to either agent alone must be further evaluated.
3. Chemotherapy offers one more type of palliative treatment for patients with the symptoms of cerebral metastatic disease.
4. The response of cerebral lesions to chemotherapeutic agents, with progression of lesions elsewhere in the body, is probably related to the small volume of the tumor mass.

REFERENCES

1. Galluzzi, S., and Payne, P. M.: Brain Metastases from Primary Bronchial Carcinoma: Statistical Study of 741 Necropsies, British Journal of Cancer 10:408-414, September 1956.
2. Chao, J. H., Phillips, R., Nickson, J. J.: Roentgen Ray Treatment of Cerebral Metastases Cancer 7:682-89 1954.
3. Bakay, L.: Results of Surgical Treatment of Intracranial Metastases from Pulmonary Cancer: Report of a case with five year survival. Journal of Neurosurgery 15:338-341 (May) 1958.
4. Brain, R.: Disease of the Nervous System, Oxford University Press, 1955.
5. Creech, O. J. Jr. et al.: Perfusion Treatment of Patients with Cancer J.A.M.A. 171:15 2069 (Dec. 1959).
6. Davies, P. L. et al.: Triethylenethiophosphoramide in Treatment of Metastatic Cerebral Malignancy, J.A.M.A. 167:6 726-27 June 7, 1958.
7. Woodhall, B. et al.: Experimental and Clinical Studies in Localized Hypothermic Cerebral Perfusion. Trans. Amer. Surg. Assoc. 77:302-314 1959.
8. Kofman, S. et al.: Treatment of Cerebral Metastases from Breast Carcinoma with Prednisolone, J.A.M.A. 163:16 1473 April 20, 1957.

Principles Of Perfusion At Normothermic And Hypothermic Levels

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Rapid progress in the techniques of whole body perfusion in recent years has led to a wide variety of machines and methods for maintaining homeostasis during open intracardiac procedures. From the many successful variations, one perfusion technique must be chosen for each patient which most facilitates the proposed surgery and most completely protects the individual patient. For these objectives to be attained, an extracorporeal circulation of considerable versatility is required and the principles underlying its successful application must be understood as fully as possible.

In a hundred perfusions, most of which were performed in the Surgical Research Laboratory of Hartford Hospital, various techniques were studied to determine how, when and why each could best be applied. Some of the data which have been accumulated define the principles underlying the proper utilization of the extracorporeal circuit.

At the present time there is widespread interest in utilizing regional and general hypothermia as an adjunct to cardiopulmonary bypass. The studies on profound hypothermia and low flow perfusions reported by Brown, Sealy, Smith, Young et al, have been notably successful clinically and have added greatly to the knowledge of hypothermia.[1] Drew and coworkers in England and others in this country have produced profound hypothermia without an artificial oxygenator and completely interrupted the circulation for extended durations for intracardiac procedures.[2] It is with this background that we have studied the production and effects of various levels of hypothermia in combination with total body and coronary arterial perfusion.

Material And Methods

The heart lung machine was made to our specifications by Edward Olson Co., Ashland, Massachusetts. (Figure 1). It incorporates the siphon caval drainage system of Gross, the Kay-Cross disc oxygenator and the DeBakey or roller type of pump for arterial flow. One hundred per cent oxygen at five liters per minute was blown through the oxygenating cylinder. The Brown-Harrison heat exchanger with the circulating ice water assembly was incorporated in the arterial line for those perfusions in which moderate-to-profound hypothermia was desired. (Figure 2). A stainless steel coil was immersed in the icebucket assembly and incorporated in a three-eighths inch line arising at a Y-coupling just beyond the arterial pump. This was used for regional coronary perfusion and cold cardioplegia when desired. When hypothermia was not required the heat exchanger was not incorporated in the arterial line. Maintenance of normothermia was effected by two one hundred-fifty watt lamps poised above the cylinder. These illuminated and heated the oxygenating chamber in conjunction with a water bath apposed to its undersurface.

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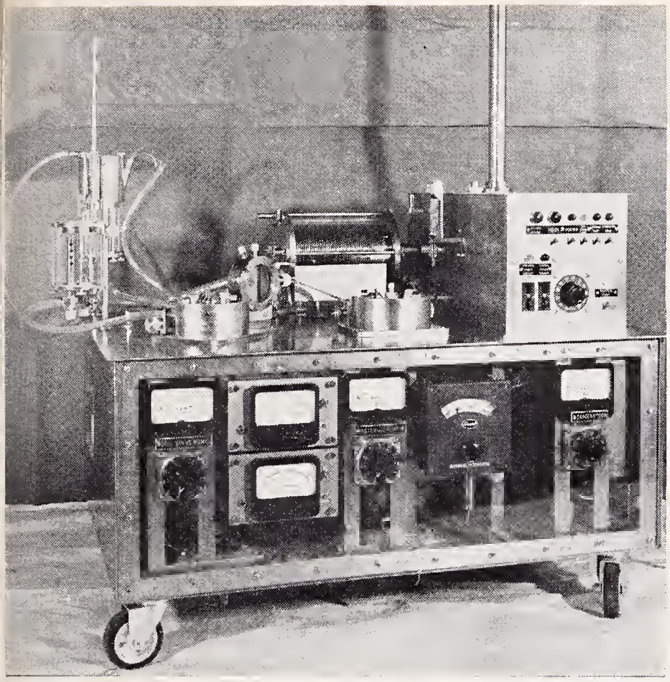


Figure I

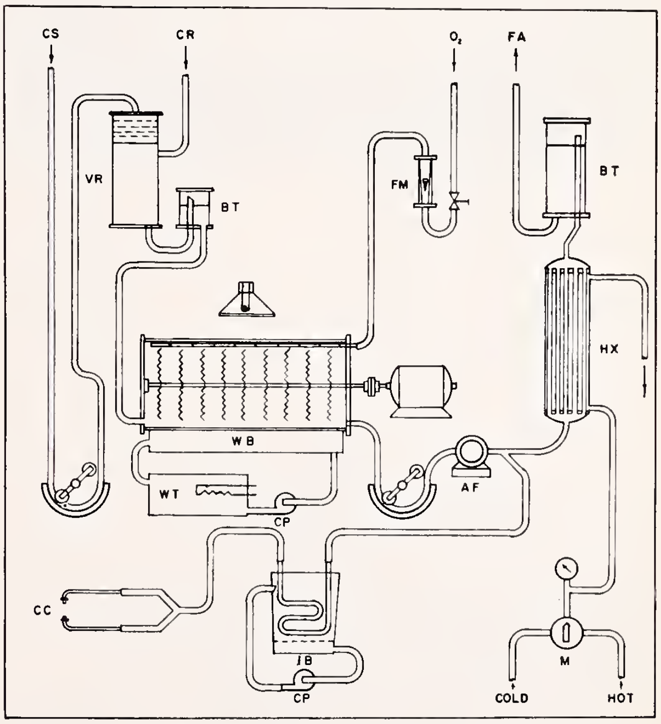
Operator's view of pump-oxygenator. Two venous reservoirs are at the left with oxygenating cylinder in the background and roller pumps in the foreground.

An important feature of our machine is that the rotating discs and all glass surfaces in contact with the blood have a permanent teflon lining. A small amount of silicone is used on the coronary sinus inflow screens in the first venous reservior but otherwise no silicone is present in the circuit. Surfaces in contact with the circulating blood are either polyvinyl tubing, smooth nylon couplings, highly polished steel with a mirror finish or the teflon which lines the discs and glass reservoirs.

Cardiographic and electroencephalographic tracings were monitored continually on an Electronics for Medicine oscilloscope and recorder. The measurement of brachial (or internal mammary) arterial pressures along with continuous pressures in the arterial line at a recirculation Y-coupling proximal to the femoral cannula was done with Statham gauges and Electronics for Medicine recording equipment. Venous pressures were obtained through polyethylene tubes threaded into superior and inferior vena cavae and registered on lumbar puncture type manometers. These various measurements gave continuous pressure gradients across both caval and femoral arterial cannulae. An additional Statham gauge at the head of the table was connected to a polyethylene tube and needle for measuring pressures in the cardiac chambers as desired; that is, pulmonic and aortic value gradients and so on. Left atrial pressures were also obtained following procedures on aortic and mitral values or with experimental cold cardioplegia.

Flow rates were determined from the tachometer dial or the arterial tracing for the precalibrated, occlusive arterial pump. These were double checked by clamping the line between the venous reservoirs and noting the time for a given blood accumulation in the proximal reservoir.

Oxygen utilization was calculated from the blood flow rates and the difference between oxygen contents in the venous and arterial end of the oxygenator. Average oxygen uptakes per disc were then determined. In experimental perfusions, cardiac catheters have been threaded into the cylinders to obtain blood samples at various positions in the oxygenator. This more accurately shows that two-thirds of the oxygen uptake occurs in the first one-quarter of the discs. Further *in vitro* recirculation studies with nitrogen desaturated human bank blood showed an oxygen uptake curve from which could be computed maximum disc function (about 3.7 cc of oxygen per disc per minute). Blood samples during bypass were obtained at intervals and analyzed for pH on a Model G, Beckman pH meter, for oxygen tensions on a polarograph and for oxy-



EXTRACORPOREAL CIRCULATION FOR HYPOTHERMIA AND CORONARY PERFUSION

Figure II

Diagram of the heart-lung machine with the heat exchanger incorporated in the arterial line and bifurcation of the arterial line leading through the ice water assembly to coronary perfusion cannulae. CS, coronary sinus suction line; CR, siphon caval return; VR, venous reservoir; BT, bubble trap; WB, water bath; WT, water thermo-couple; CP, circulating pump; CC, coronary cannulae; IB, ice bucket; FM, flowmeter; FA, femoral artery; AF, arterial filter; HX, heat exchanger; M, mixer valve.

gen saturation on a cuvette oximeter. These latter determinations were particularly valuable as deep hypothermia was attained and disc revolutions and blood flows were reduced. Retrospective blood gas analysis for carbon dioxide and oxygen content was done by Van Slyke techniques. Estimations of plasma hemoglobin were done visually and by spectrophotometry using the method of Shinowara.[3] Studies for subclinical fibrinolysis were done after the method of Astrup and Mullertz.[4] Transaminase values in the systemic and coronary sinus blood were determined after the method of Karmen as modified by Bowers, et al.[5] These transaminase measurements are determined at 37 degrees centigrade in our laboratory and are therefore higher than other reported values.

Results

In summarizing the results of normothermic perfusions, the data from the first fifteen human procedures will be utilized primarily. Table I is a summary of the cases with regard to diagnoses and vital statistics. There were two ostium primum atrial septal defects with mitral insufficiency and one ventricular septal defect with a left superior vena cava. Six secundum defects of the atrial septum were done, one of which had total anomalous drainage of the right lung into the inferior vena cava. There were three pulmonic stenoses, one of which had a co-existent atrial defect and one with a severe secondary subvalvular stenosis due to marked right ventriculary hypertrophy. Two aortic stenoses were treated, one of which was of a congenital subvalvular type and one of rheumatic etiology with co-existent mitral stenosis.

NAME	AGE	SEX	BSA	WT. KG	LESION	BYPASS MIN.	FLOW L/M_2	O_2 C $/M_2$	PO PH	RESULT
R. J.	37	F	1.47	46.5	ASD 1° MI	47	2.45	109	7.38	GOOD
E M	36	F	1.60	57.6	ASD 1° MI	49	1.63	75	7.32	GOOD
G. K.	9	F	0.94	23.6	ASD 2°	30	2.44	138	7.30	GOOD
R. W.	10	M	1.00	27.2	VSD	76	3.00	110	7.45	TRICUSPID INSUFFICIENCY
G. O.	8	M	0.84	19.5	PS INFUNDIBULAR	52	2.40	116	7.31	GOOD
D. M.	6	F	0.73	17.5	PS VALVULAR	33	2.03	85	7.45	GOOD
N. L.	7	F	0.86	21.0	ASD 2°	29	2.79	117	7.41	GOOD
L. R.	48	F	1.68	63	ASD 2° MI	40	2.42	87	7.57	GOOD
L. R.	8	F	1.04	30.3	ASD 2°	24	2.89	132	7.46	GOOD
J. G.	7	M	1.05	28.1	AS SUBAORTIC	125	2.48	127	7.42	SUDDEN DEATH P.O. #10 WITH COMPLETE HEART BLOCK
B. D.	8	M	0.92	22.4	ASD 2°	35	2.66	113	7.45	GOOD
R. K.	23	F	1.54	51.2	PS ASD 2°	53	2.06	121	—	GOOD
W. W.	18	M	1.76	61.3	ASD 2°	39	2.28	77	7.42	GOOD
C. K.	42	M	1.86	68.4	AS MS	63	2.74	94	7.41	GOOD
T. P.	32	F	1.37	42.2	TOTAL ANOM. RP VEIN AND ASD 2°	102	204	96	7.33	FATAL PULM INFARCTS
AVER.	20		1.2	39		53	2.4	106	7.4	

OPEN HEART PATIENTS

HARTFORD HOSPITAL

Table I

Summary of the first fifteen cases with regard to diagnosis, physiological data and results.

Duration of cardiopulmonary bypass varied from 24 to 125 minutes with an average of 53 minutes. The longest perfusion was in the congenital subaortic stenosis which proved very refractory to defibrillation. He developed a persistent complete heart block during aortotomy and succumbed suddenly on the tenth postoperative day. The patient with total anomalous venous drainage of the right lung and co-existent atrial septal defect (a left-to-right shunt of twenty-one liters) had an inferior caval and right atrial partition to divert the anomalous right pulmonary vein into the left atrium. Thrombosis of the intracardiac tunnel caused venous congestion and hepatization of the right lung. She died just over two weeks postoperatively of bilateral pulmonary embolism and infarction. The patient with the ventricular septal defect had a recent reoperation with repair of tricuspid insufficiency and now seems to be improving. The other cases are doing well. Figure III is an example of the uniformly good results achieved in the large majority of cases.

Average adult blood flows were 2.3 liters per square meter per minute and in the children were 2.5 liters per square meter per minute. Mean arterial pressures averaged eighty-five millimeters of mercury. There was only a fair correlation in the individual instances between flow volumes and pressures in the arterial tree. The average adult pressure gradient across the arterial cannula was seventy-six millimeters of mercury and in the children was one hundred and nineteen millimeters of mercury. Here the correlation was good with the size of the arterial cannula and the volume of blood flow. The only gradients above one hundred and ten were in the smallest children with a cannula 3.9 millimeters in diameter. The lowest gradient was forty-five millimeters of mercury in an adult male in whom a cannula 6.5 millimeters was used and the highest was two hundred and fifty-five millimeters of mercury in a nineteen kilogram child with a 3.9 millimeter femoral cannula. Most of the adult cannulae were between 5.4 and 6.8, whereas the children varied from 3.9 to 4.6 millimeters in diameter. The femoral artery cannulations became significantly tight even with the 3.9 cannula when the body weight was forty pounds or less. Conversely, in the adult sixty kilograms or larger, 6.5 millimeter cannulae and larger were readily inserted. Data on line pressures also confirm the fact that above flow rates of three liters per minute, line pressures rise *pari passu* with the length of the three-eighths inch tubing and increase in pump output. In most cases when a flow above three liters was contemplated, one-half inch tubing was utilized.

Plastic caval cannulae varied from a size twenty-four in the superior cava of the smallest child to a

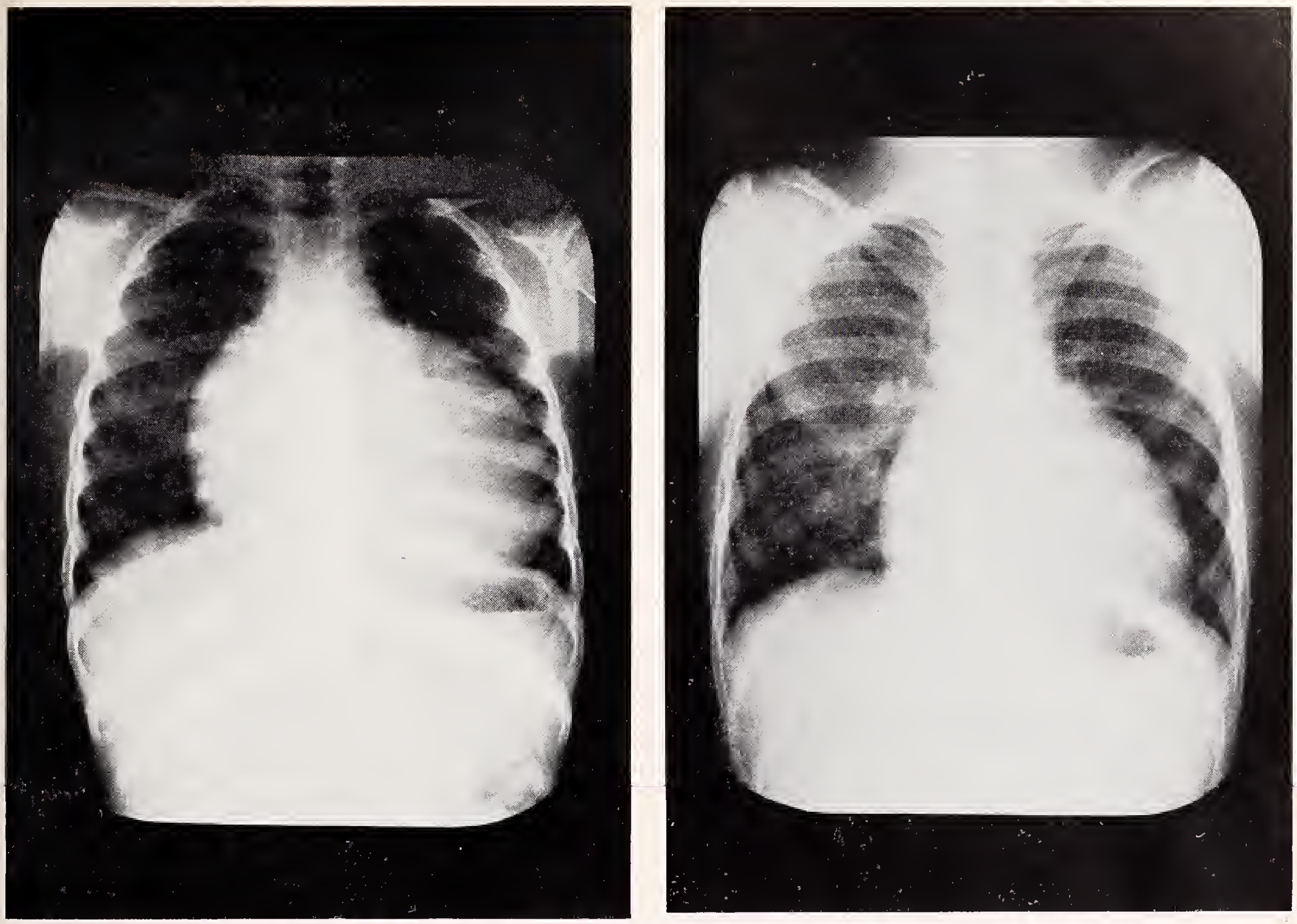


Figure III

Preoperative and postoperative x-rays on patient #5 with preterminal pulmonic valvular stenosis and subvalvular stenosis from severe right ventricular hypertrophy.

size thirty-eight in the inferior cava of the largest adult. In no instance was there a significant venous pressure elevation above normal except for transient periods during which cannulae became angulated during intracardiac retraction. Caval pressure determinations allowed immediate recognition and correction of this inadvertent angulation. The central venous pressures were most helpful, along with heart size, arterial pressure and blood balance charts in estimation of the patients' blood volume on termination of bypass. Measurement of the residual blood in the pump, together with the intake/output charts and the radiochromium blood volume just after bypass helped to define the intravascular blood volume more precisely. The pre- and postoperative weights added further corroboration to this estimation.

Having perfused an adequate quantity of blood through a smooth extracorporeal circuit and cannulae of sufficient size, the question next arises as to the quality of the blood perfused with respect to plasma hemoglobin and other chemical constituents. Twelve of the fifteen perfusions had plasma hemoglobin values after bypass of less than forty milligrams per cent or at a level not detectable on gross inspection. Case number ten had the longest perfusion of one hundred and twenty-five minutes and a value after bypass of sixty-two milligrams per cent. This patient, before bypass, had a plasma hemoglobin of three milligrams per cent, and the level in the priming blood in the pump was thirty milligrams per cent. Case number fifteen had the second longest perfusion of one hundred and two minutes with another one hundred-minute period of recirculation prior to bypass for technical reasons. The final plasma hemoglobin after bypass was sixty-five milligrams per cent. Case number seven had very slight hemolysis prior to bypass but this did not increase during the procedure. Occasionally the first voided urine specimen showed a few red cells in the sediment or a slight albuminuria, but in no case did this persist or a clinically recognizable lower nephron lesion develop.

In a recent operation for the repair of tricuspid insufficiency, in the fourth patient, a test transfusion was given one day preoperatively. A femoral venepuncture prior to the transfusion was slightly traumatic and the reading was thirty-four milligrams per cent. After the transfusion a sample flowing freely from the brachial artery was nineteen milligrams per cent. The following day, after a ninety-eight minute perfusion, the plasma hemoglobin was twenty-one milligrams per cent.

In more than a dozen human and animal perfusions no increase in fibrinolytic activity could be detected using the method of Astrup and Mullertz. In no human perfusion has there been a bleeding problem to date. Chest drainage during the first eighteen hours postoperatively averaged four hundred and eighty-eight cubic centimeters in the adults and in the children two hundred and sixty-seven cubic centimeters. This usually had a hemoglobin of less than fifty per cent and the amount of drainage almost uniformly became minimal after the first day. Heparin dosage in all cases was three milligrams per kilogram of body weight and polybrene was given in a dosage of 1.3 milligrams per milligram of heparin. Clotting time promptly fell to normal in all cases. Samples analysed during bypass showed uniformly normal pH, oxygen saturation, and polarographic readings. Carbon dioxide contents and partial pressures in retrospective analysis were found to be slightly low prior to bypass because of the excellent respiratory gas exchange with the Jefferson ventilator. On bypass, there was a tendency for the levels to stabilize at a higher level but slightly below the normal range. Postoperative carbon dioxide levels were almost invariably normal. Late pH readings, three to six hours postoperatively, in four instances were 7.30, 7.31, 7.32, 7.33. In at least one of the cases this mild acidosis was due to depressed ventilation in the Recovery Room. In the remaining eleven cases they were 7.38 or higher. In none of the bicarbonate determinations was there evidence of buffer base depletion even during the longer perfusions with a calculated excess number of discs. About ten milliequivalents of sodium nicarbonate was often added to the priming blood while compressed air was blown through the cylinder for three minutes after starting disc rotation just prior to bypass. This corrected the slight acidosis of the donor blood which paralleled the duration of incubation at thirty-seven degrees centigrade prior to bypass.* A small additional aliquot of bicarbonate was sometimes added during bypass but none was given postoperatively. One hundred per cent oxygen flowing at five liters per minute through the cylinder was started shortly after the beginning of partial bypass, to prevent supersaturation of the priming and recirculating blood.

Oxygen consumptions on bypass varied from seventy-five to one hundred and thirty-eight cubic centimeters per square meter per minute with an average of ninety-nine cubic centimeters per square meter per minute in the adults and one hundred and twenty-two cubic centimeters per square meter per minute in the children. In general, only small amounts of demerol or pentothal were given during bypass with curare before bypass in the children and succinylcholine in the adults. The patients were in a light plane of anesthesia but did not move significantly and demonstrated the usual fifteen per cent reduction in oxygen consumption due to anesthesia.

Oxygen uptakes per disc calculate low on all the human perfusions since an excess of discs was always used to assure adequate oxygenation and removal of carbon dioxide. In preliminary animal studies maximum uptakes for straight and crimped discs were ascertained by deliberately selecting an inadequate number of discs for the animal being perfused and rotating the discs at the optimal speed. Recirculation studies were done *in vitro* on artificially desaturated bank blood and even higher disc uptakes of oxygen were obtained. These studies suggested a range of uptake for the flat disc of 1.5 to two cubic centimeters of oxygen per minute and for the crimped discs with forty per cent more surface area, 2.2 to three cubic centimeters of oxygen per minute. The *in vitro* studies with the oxygenator split into two groups of discs with a cardiac catheter in the hiatus showed that two-thirds of the oxygen uptake occurred in the first one-quarter of the discs, presumably due to the avid affinity of unsaturated blood for oxygen.

Oxygen uptake of the discs was also found to increase with the speed of the revolutions. Revolutions of one hundred and sixty to one hundred and eighty per minute could be effected without foaming or bridging of the blood between the discs. The usual rate during the human perfusions was about one hundred and twenty to one hundred and forty revolutions per minute. Precisely constructed, unwarped, crimped discs may actually be used with intermediate spacers of 0.155 inches in width, but this has not been necessary to date to provide adequate respiratory capacity. Furthermore, although the flat discs can be packed on with narrow spacers (0.140 inches) the superior capacity of the oxygenator with the crimped discs, even with the wide spacers, becomes more pronounced the greater the length of the oxygenating cylinder selected. Since our early observations on comparative oxygen uptakes were made, only the crimped discs have been utilized. If the figures of 2.2 cubic centimeters of oxygen uptake for the crimped disc and one hundred and twenty cubic centimeters of oxygen per square meter of body surface area are utilized, adequate respiratory capacity in the oxygenator will be assured. With five liters per minute of oxygen flowing through the cylinder, a complete ventilation of all parts of the cylinder with oxygen can be assumed. In the early animal perfusions one and one-half to five per cent carbon dioxide was utilized in the oxygen mixtures and the carbon dioxide content and partial pressures became excessively elevated in many instances with a resultant respiratory acidosis. In all human perfusions one hundred per cent oxygen was utilized and even with an excessive number of discs, the pCO_2 ran in the twenty-five to thirty-five range, with a normal bicarbonate level and with the total volume of carbon dioxide essentially unchanged after bypass.

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* Except in case number twelve, all the heparinized donor blood was drawn on the day of surgery.

The filming on the teflon-lined discs has been uniformly excellent. No evidence of significant change in the teflon surface has been noted after more than a year of use. The discs should be inspected periodically, however, lest chipping or irregularities of the surface from rough handling go unrecognized.

Hypothermia

Only two of the first fifteen human cases were cooled with the Brown-Harrison heat exchanger to moderate hypothermia. The other thirteen had no heat exchanger in the arterial line and the temperature was maintained by the lights and water bath. It is noteworthy that the water bath at no time exceeded thirty-eight degrees centigrade and the patients' temperatures never varied more than one degree from thirty-seven degrees centigrade. The two lights above the oxygenator contributed a large share of the heat to the cylinder. They increased the visualization of the disc action by preventing fogging and eliminated the danger of hot spots in areas of the cylinder in contact with the blood.

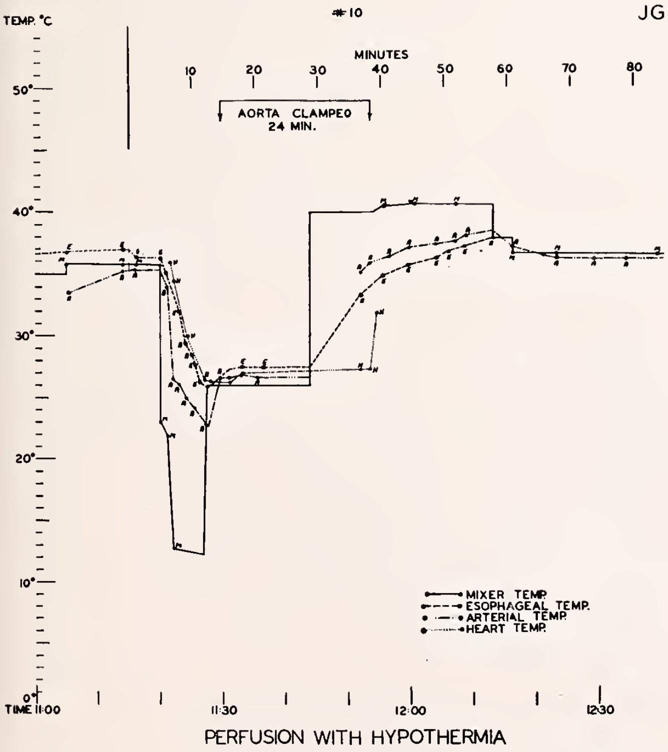

Figure IV

Moderate hypothermia induced with heat exchanger for repair of congenital subaortic stenosis.

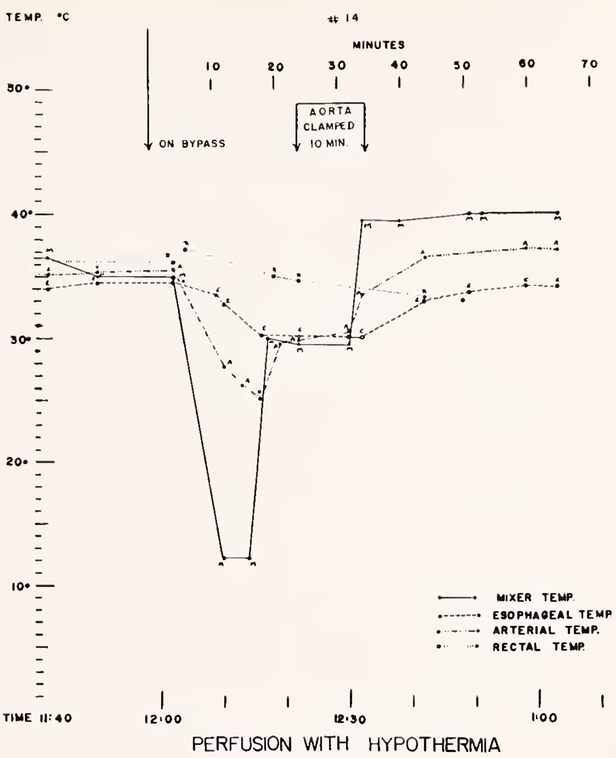

Figure V

Moderate hypothermia for repair of rheumatic mitral and aortic stenosis.

In the tenth and fourteenth cases moderate hypothermia to twenty-six and thirty degrees centigrade respectively was induced with the heat exchanger and refrigerated water at twelve degrees centigrade. (Figures IV and V.) Both cases were cooled to these levels to permit correction of their aortic stenoses with cross-clamping of the ascending aorta. The obligatory coronary stasis was well tolerated in each case, although case number ten fibrillated and was difficult to defibrillate due to a complete heart block. He was not given quinidine prior to cooling as is now our custom (fifteen milligrams per kilogram) and was cooled into the irritable range (below twenty-eight degrees) rather rapidly. At the termination of a twenty-four minute aortotomy and release of the clamp, however, the coronary sinus transaminase was fifty (upper normal range for SGOT (serum glutamic oxalacetic transaminase) in our laboratory). This suggests protection of the myocardium despite the troublesome irritability.

In case number fourteen, cooling was much more gradual, dropping only five degrees in fifteen minutes. This was partially due to the low water flow through the heat exchanger in the adult (five liters per minute) which was one-half that in the child. As one approaches a five liter blood flow in the adult, the water flow through the heat exchanger should be kept at ten liters or more per minute. When one corrects for the body mass cooled, the adult cooling rate was 1.2 degrees centigrade per square meter per minute as compared with the child's rate of 1.7 degrees centigrade per square meter per minute. A small dose of quinidine (0.5 gram) was given prior to cooling in case number fourteen and his rhythm remained stable during the ten minute aortotomy and aortic commissurotomy on a lightly calcified valve. Mitral commissurotomy was accomplished through the interatrial groove just prior to cooling and just after institution of total bypass. The coronary sinus transaminase did not rise in this case but the preoperative value was high and therefore invalidated this study. It was reassuring, however, that the left atrial pressure after bypass had been reduced to well within the normal range. The myocardial function remained good throughout the operative and postoperative period and the valvular repairs were excellent.

It is of interest that the oxygen consumption at thirty-six degrees centigrade was one hundred cubic centimeters per square meter per minute and fifty-one cubic centimeters at twenty-seven degrees centigrade in case number ten. After rewarming to thirty-seven degrees centigrade it was one hundred and twenty-four cubic centimeters per square meter per minute. Similarly with case number fourteen the oxygen consumption was ninety-two cubic centimeters per square meter per minute at thirty-six degrees centigrade and fell to forty-eight cubic centimeters at thirty degrees centigrade.

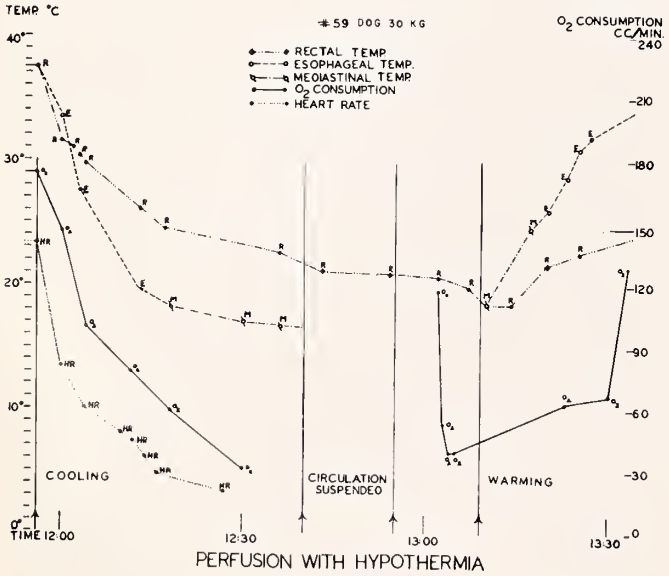

Figure VI

Deep hypothermia and circulatory arrest for twenty minutes. Note accumulation and repayment of oxygen debt in about fifteen minutes.

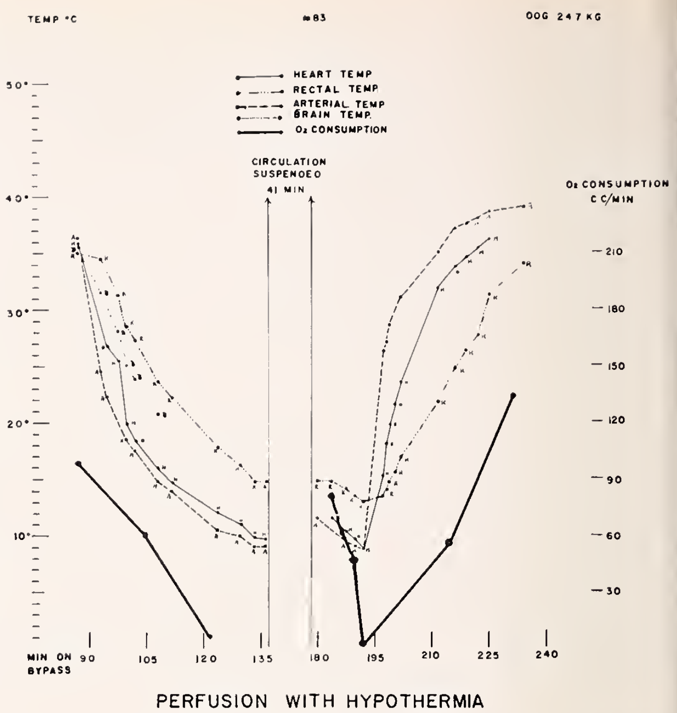

Figure VII

Profound hypothermia with circulatory arrest for forty-one minutes. Oxygen debt is again abolished in about fifteen minutes.

Examples of deep and profound hypothermia with corresponding oxygen consumptions before and after circulatory arrest are seen in dogs number fifty-nine and eighty-three. (Figures VI and VII.) It is interesting that in dog number fifty-nine the oxygen consumptions of five cubic centimeters per kilogram fell to one cubic centimeter per kilogram at eighteen degrees centigrade and rose to five cubic centimeters after only twenty minutes of circulatory arrest at that level. The oxygen debt was paid after resumption of circulation for fifteen minutes at eighteen degrees centigrade. It is to be noted that the heart rate falls *pari passu* with the core temperature and oxygen consumption. In this animal, cooling to eighteen degrees centigrade was accomplished in a half an hour with refrigerated water at about ten degrees centigrade. In dog number eighty-three, cooling to ten degrees centigrade was accomplished with the ice water assembly in forty-five minutes and circulatory arrest was prolonged to forty-one minutes. The oxygen consumption of four to five cubic centimeters per kilogram at thirty-five degrees centigrade drops to about one-quarter cubic centimeter per kilogram at ten degrees centigrade and rises to 3.5 cubic centimeters per kilogram after forty-one minutes of circulatory arrest. Here again the oxygen debt is paid in about fifteen minutes of perfusion at ten degrees centigrade. In each case, rewarming is accomplished in about one half an hour.

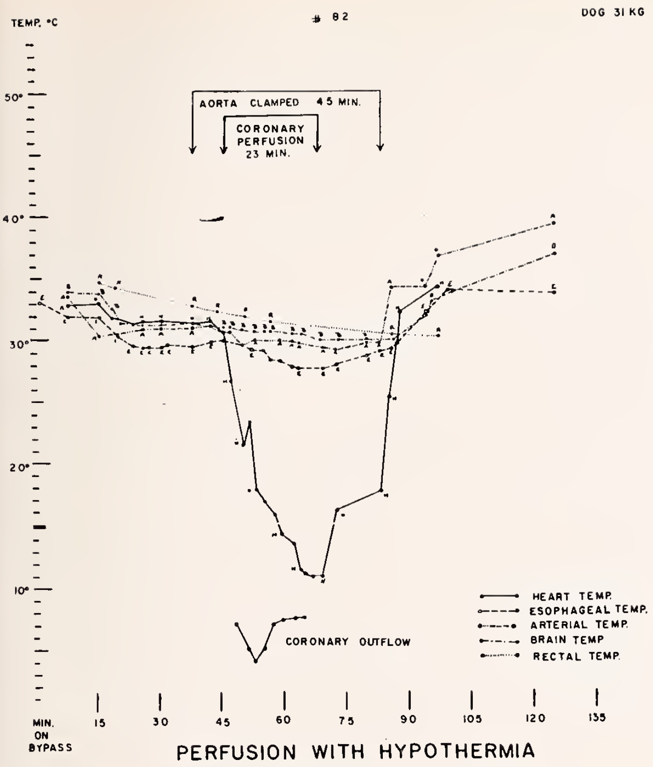

Figure VIII

Cold cardiac arrest with coronary perfusion via ice water assembly and maintenance of moderate general hypothermia with heat exchanger as in Figure II.

In Figure VIII, an example of regional hypothermia is demonstrated. Here the core temperature is held at moderate hypothermic levels while the heart is cooled with coronary perfusion to eleven degrees centigrade in about seventeen minutes. The heat exchanger on the coronary arterial line was the steel coil submerged in the circulating ice water assembly described previously. It is noteworthy that the perfusing blood dropped from thirty degrees centigrade to eight degrees centigrade in its passage through the ice water. The flow, however, was only about one hundred cubic centimeters per minute. With the higher coronary flows that must be attained for cold cardioplegia with enlarged adult hearts, extra coils may be necessary to improve the efficiency of this exchanger.

Coronary sinus transaminase values have been studied in many animals and five humans on cardiopulmonary bypass. For example, in three humans with secundum defects of the atrial septum, one with co-existent valvular pulmonic stenosis, the coronary sinus SGOT values just prior to termination of bypass had risen to sixty, eighty, and seventy-six, all above fifty, the upper limit of normal for our laboratory. Previous and concomitant samples from the arterial needle and the machine in these cases were in the normal range and SGPT (serum glutamic pyruvic transaminase) values were usually normal. Postoperative values reached a peak in the first two days and were moderately elevated (eighty to one hundred and fifty-six) in all three cases. They fell rapidly to normal thereafter. These post-operative SGOT elevations were usually accompanied by normal SGPT levels and other normal liver function tests. The median sternotomy used in all but the first two cases largely eliminated the trauma to skeletal muscle as a source of the elevated SGOT levels. Because of similar findings in dogs, it seems that SGOT levels in the coronary sinus are early and sensitive indices of myocardial trauma or anoxia. The only method of preventing significant elevations in animals in which the ascending aorta was cross-clamped for aortic valve exposure was by hypothermia with or without coronary arterial perfusion. If coronary arterial perfusion is not utilized, the depth of hypothermic level must parallel the duration of coronary inflow stasis. Our data suggest that moderate hypothermia about twenty-eight degrees centigrade is sufficient to protect the myocardium for about thirty minutes of coronary inflow stasis. Significant elevations in coronary sinus transaminase values were also prevented in dogs with aortotomies of forty to seventy minutes duration by hypothermia to about twenty degrees with and without intermittent coronary perfusion.

Discussion

With regard to the normothermic perfusions, essentially normal flows were maintained in most cases with minimal cannulae gradients and hemolysis. The teflon lining of the discs and glass surfaces eliminated the necessity of using silicone which can be tedious to apply properly and a potent source of hemolysis or silicone emboli if improperly applied. A light silicone spray is still used on the screens in the first venous reservoir to defoam the blood returning from the coronary sinus.* Although the human and dog kidney can tolerate a large amount of plasma hemoglobin in the absence of renal anoxia, lower nephron nephrosis develops much more readily from a combination of both factors. The minority of cases which showed a few red cells in the first urinary sediment went on to complete clearing in subsequent analyses and renal function remained good.

The absence of buffer base depletion and carbon dioxide washout on bypass in our human cases is corroborated by many animal perfusions. At sea level the pO_2 of approximately six hundred and seventy millimeters of mercury in the oxygenating cylinder creates a sizeable gradient for oxygen uptake, particularly at the venous end of the cylinder.

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*At present we are converting to the use of teflon shavings in place of the screens to completely eliminate silicone from the circuit.

Although no such gradient is present for the elimination of carbon dioxide, the five liter per minute oxygen flow and the fact that it is twenty to thirty times as diffusable as oxygen balances the egress of carbon dioxide with the ingress of oxygen in our disc oxygenator.

Artificial oxygenators cannot match the fantastic surface area for gas exchange that nature provides in the human alveoli. Ventilation of the cylinder with "pure" oxygen (usually one to two per cent nitrogen) eliminates the humans' residual air dilution, however, and provides considerably higher partial pressures of oxygen in contact with the blood film. The fact that venous blood becomes rapidly saturated even at low partial pressures of oxygen and that most of the oxygen uptake occurs in the first one quarter of the discs points to the large safety factor which is present in this type of oxygenator. This safety factor is even greater when one can increase the exposure of the blood film by increasing disc speed or reduce oxygen needs by rapidly inducing hypothermia.

The venous pressure has been the single most valuable reading in adjusting intravascular blood volume at the end of bypass. We have tended to come off bypass with a slightly low blood volume to prevent overdistention of the heart. In two-thirds of our human perfusions, radiochromium blood volumes were low immediately postoperatively with body weights simultaneously increased. This was probably due to the relatively large amount of water that was present in the extracellular and intracellular space postoperatively. The anticoagulant solutions in the heparinized and citrated blood and residual rinse water in the pump add a considerable amount of fluid to the sum total of intravenous crystalloids. Postoperative fluids must be restricted carefully until diuresis occurs on about the fourth day postoperatively.

The induction of general hypothermia can be accomplished and reversed rapidly with accurate control using the Brown-Harrison heat exchanger. For children in whom a flow of less than twenty-five hundred cubic centimeter is anticipated, nylon inserts in the center of the blood conduits effect a thinner blood film and markedly increase the cooling efficiency.[6] Our data certainly support the concept that with flows over three liters these inserts cause a considerable gradient and dangerously high proximal line pressures. Even adults with large body masses can be rapidly cooled to moderate hypothermic levels, however, without the inserts if refrigerated water (about twelve degrees centigrade) is circulated through the water jacket in adequate volumes (ten liters or more per minute). For deep or profound hypothermia to be achieved with sufficient rapidity in adults, it is necessary to use the ice water assembly which circulates twelve liters or more of water at zero degrees through the heat exchanger. Modification of the inflow end of the exchanger to baffle the blood through the peripheral conduits is under study and may have increased its efficiency.

In general, hypothermia was induced on total bypass with high flows. With this system, the core cooling has been quite even with a minimal lag in brain cooling after the central organs (heart, liver, kidneys). The most marked cooling lag is in the muscles of the lower extremities and the rectal temperature response is nearly as slow. Although heat exchangers are being made more efficient, a limit will soon be reached at which a minimal duration will be necessary for extracting heat from various tissues with variable insulating properties. More rapid cooling will induce temperature gradients between the various compartments (intravascular, extracellular and intracellular) and between various organs of the body core.

Regional hypothermia or cold cardioplegia can be effected rapidly with adequate coronary perfusion volume from the steel coils immersed in circulating ice water assembly. This can be speeded by surface cooling of the heart with ice in plastic bags or sterile ice chips. Preliminary data from other clinics suggest that profound regional hypothermia of the heart is well tolerated.[7] Conversely, profound general hypothermia may have deleterious effects on the central nervous system, possibly from cold agglutination or sludging with increased viscosity of the blood.[8]

The cerebral effects of profound hypothermia *per se* must be separated from those of hypothermia with circulatory arrest. Although the brain will tolerate up to four minutes of circulatory arrest at thirty-seven degrees centigrade and about eight minutes at thirty degrees centigrade, safe durations of arrest are not well worked out as yet for the deeper levels of hypothermia. With circulatory arrest, the temperatures in the various tissues tend to rise as does cellular metabolism as demonstrated in Figures 6 and 7. Sizeable oxygen debts can be acquired even with deep hypothermia, and these require intermittent perfusion to prevent anoxia and restore hypothermic levels. Although one can obstruct coronary inflow for thirty minutes at thirty degrees centigrade, forty-five minutes and one hour are probably safe at deep and profound hypothermic levels respectively. The heart's tolerance of complete circulatory stasis is about three times that of the brain at normothermic and moderately hypothermic levels. One might hypothecate from this, and from oxygen consumption data, that the limit of safe arrest of the cerebral circulation would be twenty minutes at twenty degrees and thirty minutes at ten degrees, but more data are needed on these points.

Two recent publications present results of systemic transaminase values during and after open-heart surgery with other surgical procedures as controls.[9,10] In a few cases, Norberg and Senning obtained specimens from tubes leading from the coronary sinus suckers and noted that the transaminase and dehydrogenase values were higher than simultaneous samples from the oxygenating cylinder. This they attributed to hemolysis. Although hemolysis does affect lactic (LDH), malic and isocitric dehydrogenase, transaminase values are minimally affected. Our samples which were taken from the coronary sinus or from the right atrium on total bypass with an intact septum showed minimal hemolysis. The elevated levels of coronary sinus transaminase reflect a concentration effect and represent the most sensitive index of myocardial hypoxia or trauma that we have found. After bypass the systemic levels of transaminase begin to rise slowly and reach a plateau during the first postoperative day. They begin to subside slowly and steadily after a few days in the uncomplicated case. Any late rise or prolonged elevation may signal both hepatic and myocardial anoxia and may be of considerable prognostic importance.

In animals the donor blood may show high transaminase levels due to methods of collection. If the prebypass levels are about normal, the coronary sinus transaminase values can be useful in evaluating the protection afforded by coronary perfusion and/or hypothermia in maintenance of myocardial integrity during various procedures in the heart.

Summary

A review of data from fifteen human and eighty-five animal perfusions has underscored certain principles in the proper utilization of the extracorporeal circuit. The following conclusions seem justified.

1. Teflon lining of the extracorporeal circuit is conducive to excellent gas exchange in the oxygenator and very low rates of hemolysis. It largely eliminates the need for silicone with its attendant hazards and difficulties.

2. With the extracorporeal circuit described, homeostasis of the entire body can be effectively maintained. For exposure of the aortic valve and the consequent coronary inflow stasis, moderate general hypothermia can be rapidly instituted, controlled and reversed in humans. It can prevent myocardial anoxia for brief aortotomies.

3. For prolonged aortic valve procedures in animals, deep to profound general hypothermia or regional cardiac hypothermia with coronary arterial perfusion can be readily accomplished and reversed. Deep general hypothermia, either *per se* or with coronary arterial perfusion, was found to prevent significant elevations in the coronary sinus transaminase values. These elevations were found to be sensitive indices of myocardial trauma or anoxia.

Addendum

In the year and a half since this initial series, cold cardioplegia has been effected with sterile ice chips in the pericardial cavity both clinically and in the research laboratory. This has largely eliminated the need for coronary arterial perfusion.

Acknowledgment

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REFERENCES

1. Sealy, W. C., Brown, I. W., Young, W. G., Jr., Stephen, C. R., and Harris, J. S. Hypothermia, low flow extracorporeal circulation and controlled cardiac arrest for open-heart surgery. *Surg. Gynec., Obst.* 104:441, 1957.

2. Drew, C. E., and Anderson, I. M. Profound hypothermia in cardiac arrest. *Lancet* Pp. 748-750, 1959.

3. Shinowara, George Y. Spectrophotometric studies on blood serum and plasma: Physical determinations of hemoglobin and bilirubin. *Am. J. Clin. Path.* 24:696, 1954.

4. Astrup, T., and Mullertz, S. Fibrin plate method for estimating fibrinolytic activity. *Arch. Biochem.* 40:346-351, 1952.

5. Bowers, G. N., Jr., Durant, J. R., Beckett, R. S., and Tennant, R. An accurate simplification of the serum glutamic oxalacetic and pyruvic transaminases. *Am. J. Clin. Path.* 30:1-6, 1958.

6. Brown, I. W. Personal communication.

7. Greenberg, J. J., Edmunds, L. H., Jr., and Brown, R. B. Myocardial metabolism and postarrest function in the cold and chemically arrested heart. *Surgery.* 48:31-42, 1960.

8. Bjork, V. O. An effective blood-heat exchanger for deep hypothermia in association with extracorporeal circulation but excluding the oxygenator. *J. Thoracic Surg.* 40:237, 1959.

9. Norberg, B. and Senning, A. A study of serum enzymes during and after open heart surgery. *Acta chir. scandinav. Suppl.* 245:275-282, 1960.

10. Quinn, J. W., Sirak, H. D., Shatanak, E. H., and Franjola, W. J. Transaminase values following open heart surgery. *Ann. Surg.* 152:45-50, 1960.

Regulating The Thyroid Intake In A Cretin: Limitations Of Clinical Criteria

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A recurrent problem in clinical management of the cretin is how to assess as rapidly as possible the individual dosage requirement of thyroid extract. In this report, it will be shown that the best way to do it is by following the blood iodine levels.

In an outstanding article on the management of hypothyroidism, Cooke and Man[1] evaluate the commonly recommended method for carrying out therapy, which is to increase gradually the dose of thyroid until toxicity is observed. They go on to say, "This procedure would seem to be unsatisfactory in many instances since it has been our experience that behavior such as irritability has been interpreted as indicating excessive thyroid medication, and dosage has been decreased even though subsequently the BEI (or PBI)[2,3] was demonstrated to be far below the normal level."[4] BEI refers to the concentration of butanol-extractable iodine and PBI the concentration of protein bound iodine in the blood serum.

Current textbooks fail to discuss the question of whether physicians can establish the optimum dosage of desiccated thyroid (U.S.P.) on a clinical basis. Talbot et al[5] and others[6] have attempted to give a mg/kg or mg/m^2 (milligram per square meter body surface) dose of thyroid, but it has been amply demonstrated that the range of requirement is so large (from 3 to 13 mg/kg or from 125 to 265 mg/m^2) the formula is useless in determining a correct dose.[1]

Pickering[7,8] mentions the importance of osseous development as a guide to optimal therapy in cretin children, as was first pointed out by Wilkins[9] in 1938. From his studies on infant rhesus monkeys, Pickering suggests, ". . . therapy in athyroid infants and children should be pushed to a limit producing normal serum BEI concentrations and/or osseous development." However, since changes in osseous development cannot be ascertained until after a considerable lapse of time, this criterion alone cannot be used as a guide during the first few important months of treatment; but a stable BEI response can be observed in a matter of ten to fourteen days.

It has been repeatedly emphasized[1,5,8,10-13] that there are three requirements for meeting the replacement needs of the athyreotic or hypothyroid infant; namely, 1) early treatment (initiated before three months of age), 2) adequate dosage, attained rapidly, and 3) continuous treatment.

It must be recognized, of course, that even when these requirements are met, the mental deficiency of the individual cretin may not be fully cured. Bruch and McCune[14] have concluded from their study of 23 cases that the mental deficiency of the cretin may not respond to thyroid treatment. Smith, Blizzard and Wilkins in a more recent summary[12] of 128 cases were able to show that 10 of 22 severe congenital cretins (complete absence of thyroid function) were able to attain an I.Q. greater than 90 when treated prior to six months of age. However, they state, "In this study the concentration of protein bound iodine in the serum (PBI) was not considered in the evaluation of the adequacy of therapy with desiccated thyroid." Only 15 of their 51 congenital cretins were begun on thyroid

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therapy under 4 months of age. Only after a series of children has had continuous and completely adequate replacement therapy from early infancy, will it be possible to ascertain definitely whether the mental deficiency is concurrent with, or a result of, postnatal hypothyroidism. At the present time there is evidence that, at least in some cases, mental deficiency as well as the other defects of cretinism, can be ameliorated if treatment is begun early enough and replacement with USP thyroid is continuous and complete.

There are those[12,15] who believe that the cretin's prenatal thyroid deficiency (unrelieved by the mother's thyroid hormone supply) is responsible for that part of the brain damage which is unresponsive to postnatal therapy. Since our only treatment regimen is begun postnatally, it is imperative that we find out what proportion of the brain damage is preventable by current methods applied optimally.

If it proves to be true that many cretins can be fully cured, then a dependable method of ascertaining adequate dosage of thyroid becomes extremely important. The following case study illustrates the difficulties of depending on clinical criteria alone and emphasizes the need for relying more upon laboratory tests.

Case Report

This patient was born in July, 1954; his birth weight was 3870 gm (8 lbs. 8 oz.), head 37 cm (14 inches) and length 54 cm (21½ inches). No neonatal difficulties were encountered and he was breast fed. He was discharged on the fourth day of life as a well baby. He was seen in a well baby clinic at the age of one month at which time there were no complaints and he was diagnosed: "well baby". The patient was brought to an emergency room at age 7½ weeks with a complaint of constipation, but the family left without being seen by a physician. They returned to the emergency room 12 hours later with complaints that the baby had had no bowel movement for 10 days, was not nursing well at the breast, and needed to be awakened for feedings. At this time it was noted that the temperature was 36.5°C (97.8°F) rectally, and the abdomen was obviously distended. Rectal examination revealed a normal sphincter with much feces in the rectum. Discharge diagnosis was "constipation of unknown etiology." The treatment recommended was a commercial mineral oil preparation. No follow-up arrangement was made. The patient was seen in a VNA clinic at 2½ months of age and a diagnosis of mongolism was made.

The author saw this patient for the first time two weeks later. Examination revealed a small, puffy, lethargic (although irritable when disturbed) baby with dry skin, coarse hair, husky voice, large tongue, protuberant abdomen, umbilical hernia, retarded motor performance, constipation and distant heart sounds. Apical pulse was estimated at 120. Temperature was 36°C (96.8°F) rectally, and the weight was 5 kg (11 lbs).

Laboratory tests: Hgb, Wbc, urine, blood cholesterol, alkaline phosphatase, EEG and chest X-ray were all normal. BEI equaled zero (none detectable), and the bone age was reported to be in the 10th percentile for age and sex. (In the ankle the ossification centers for the astragalus and os calcis were present. No other tarsal centers had made their appearance. The proximal epiphysis of the tibia was barely visible on the right side and was not yet apparent on the left side.) Developmental examination* gave a developmental age of about six weeks (estimated I.Q. of 50).

Treatment was begun with ¼ grain (16 mg) USP desiccated thyroid orally, and on the fifth treatment day increased to ½ grain (32 mg). On the twelfth treatment day thyroid dosage was increased to ¾ grain (48 mg). The baby was discharged on the sixteenth treatment day with instructions to begin 1 grain (64 mg) thyroid daily.

The temperature, pulse and stool were normal on the sixth treatment day. Further increases in thyroid were made until signs of 'toxicity' appeared.

After five weeks on 1 grain of thyroid daily the mother reported increasing irritability and hyperactivity when awake (all day). However, because of the holiday season, the mother did not bring the baby in for examination until two weeks later when, in addition to continued irritability, the baby exhibited profuse sweating day and night, three or more bowel movements per day, and marked increase in appetite. Examination showed a very active baby with normal skin and hair, rectal temperature 37.6°C (99.6°F), and pulse 160. Although these signs strongly suggested thyroid toxicity, the BEI was only 3.6 μg per 100 ml (normal range 4.5 to 7.3 μg per 100 ml). Recheck confirmed this level. At this point the author faced a decision that in almost any other situation would have been heavily weighed by clinical judgment. Instead of reducing the dose, however, it was increased to 1½ grain (96 mg) daily.

During the following month the mother reported a "much calmer baby" who slept 12 to 14 hours a night and who began having a slightly labored bowel movement every other day. His appetite decreased and he rarely perspired except when eating.

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*All of the developmental examinations were performed by Dr. Sally A. Provence of the Yale University School of Medicine Child Study Center.

Examination revealed an entirely normal baby with the only remaining stigmata being umbilical hernia and a developmental age of about nineteen weeks (representing an I.Q. of about 75). His thyroid dosage was increased to 2 grains (128 mg) per day and three weeks later his BEI was 8.9 μg per 100 ml. The author again was faced with the dilemma of whether to rely on the clinical findings and keep the dosage constant or reduce it because of the elevated BEI. The latter course was followed and the thyroid dose was reduced to 1½ grain (96 mg) daily. Four weeks later the BEI was 5.9 μg per 100 ml. After two months on the same dosage the BEI had fallen to 4.9 μg per 100 ml. Because it was considered to be desirable to keep these children in the high normal range and 2 grains (128 mg) daily had proved too high, the dose was increased to 1¾ grain (112 mg) daily. This dosage maintained the BEI between 5.5 and 7.7 μg per 100 ml for the next five years (checked at least every 6 months). During this time growth continued at a normal rate and the I.Q. steadily improved. The most recent tests (revised Stanford-Binet, Gesell scale and Merrill-Palmer) gave an average I.Q. of 107, at the age of 6 years.

Discussion

It can be seen from the foregoing that in the first few months of treatment the author was laboring under two misconceptions. One, that the clearing of observable signs and symptoms of cretinism indicated an adequate replacement of thyroid and two, that the usually stated signs and symptoms of hyperthyroidism were relevant in infants.

When this patient had been on therapy for two months he weighed 12 lbs. 2 oz. (5.5 kg). Using Cooke's[1] *maximum* observed requirement (in his series) of 13.2 mg/kg this patient might have required as much as 73 mg USP thyroid per day. He was receiving an amount close to this maximum, 64 mg per day or 11.6 mg/kg, and seemed to be toxic. Yet the BEI level indicated that his requirements were not being met. When the dose was increased to 16 mg/kg at six months of age (third treatment month) he finally achieved a BEI in the normal range. The baby required 20 mg/kg per day of USP thyroid to reach an above normal BEI level (8.9 μg. per 100 ml).

By the tenth month and for five years, 1¾ grains (112 mg) per day were required by this child to keep his BEI in the normal range. This dosage represents a requirement at first of 15.5 mg/kg per day and at present about 6 mg/kg per day.

Smith et al[12] advise never to exceed a dose of 60 to 75 mg. per day in a baby under 18 months of age. Lowrey et al,[13] however, describe an empirical regimen which may require as much as 120 mg. daily dose in the first few months of treatment.

In Nelson's text[6] the statement is made, "Response to medication can be expected in the course of a few weeks. There is loss of weight, the skin and hair assume a normal appearance and the body temperature becomes normal. The bowel movements are regular and the pulse rate is found to be normal . . . There may be a period of over excitability and restlessness but such symptoms are not an indication for interruption of treatment." While these statements are undoubtedly true, the conclusion cannot be drawn that if all of these things occur the clinician then knows that he is giving enough thyroid to replace the cretin's deficit entirely.

Cooke[1] states, ". . . adjustment of optimal dosage should be based upon frequent determinations . . . BEI or PBI . . The BEI (or PBI) should be measured after two weeks of therapy, then at monthly intervals until a normal level is attained . . ." If early complete replacement is the key to elimination of the cretin's stigmata (especially mental retardation), then even this regimen is not a guarantee that the baby will not go several months after diagnosis with inadequate amounts of circulating thyroid hormone. In the case presented, using Cooke's regimen, more than two months were required to establish this baby's correct dose. In the light of this case, it appears that it is necessary to check the BEI every two weeks until a stable therapeutic level is attained.

A regimen of deliberately pushing the thyroid dose into the highest range (about 15 mg/kg) during the first three weeks of therapy and then, with close observation and frequent BEI determinations, slowly reducing it until the individual's normal level is attained, has much to recommend it. Such a regimen would eliminate insufficient dosage during the crucial first few months of life. Frequent BEI or PBI determinations would still be necessary since as Cooke[1] also noted, ". . . a very high level of circulating hormone . . . may not be accompanied by any obvious stigmata of hyperthyroidism such as diarrhea or restlessness." Thus a BEI test every two weeks would help eliminate prolonged periods of hyperthyroidism, as well as insure more rapid correction of the hypothyroidism.

Dr Cooke reports[15] the case of a baby with a normal PBI, who was receiving a high dosage of thyroid extract and seemed clinically thyrotoxic. After a period of reduced dosage, the thyrotoxic symptoms cleared. This is a most unusual experience and the converse of the case reported above. Further study would be needed to ascertain whether this case represents a failure of BEI or PBI to measure tri-iodothyronine, or whether the baby suffered from a specific type of deficiency of thyroid binding protein in the serum.

Acknowledgment

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Summary

A case of cretinism is presented in which there was a lack of correlation between clinical criteria and the level of measurable circulating thyroid hormone. Early in the treatment the clinical signs pointed to hyperthyroidism whereas the BEI indicated hypothyroidism. At a later stage all the clinical signs indicated normality whereas the BEI showed hyperthyroidism.

Because the cretin's individually correct dosage cannot be based on mg/kg or mg/m^2, it is essential to have frequent BEI (or PBI) determinations to help the physician in determining the correct thyroid dosage. It is recommended that the BEI (or PBI) be measured every two weeks until euthyroid levels are obtained; then monthly during the remainder of the first year of life.

The suggestion is made that it might be better to give a maximum dose to an infant cretin at the outset and then gradually reduce it to euthyroid levels. This method would be safe with constant observation under hospital conditions during the first ten days of treatment.

BIBLIOGRAPHY

1. Cooke, R. E. and Man, E. B.: Management of hypothyroidism in infancy and childhood. Pediatrics *17*: 617, May 1956.

2. Man, E. B., Kydd, D. M., and Peters, J. P.: Butanol extractable iodine of serum. J. Clin. Invest. *30*: 531, May, 1951.

3. Kydd, D. M., Man, E. B., and Peters, J. P.: Concentration of precipitable iodine in the serum. J. Clin. Invest. *29*: 1033, August, 1950.

4. Durham, J. R., Cooke, R. E., Lancaster, J. W. and Man, E. B.: Serum butanol-extractable iodine values of children under ten years of age. Am. J. Dis. Child. *87*: 468, April, 1954.

5. Talbot, N. B., Sobel, E. H., MacArthur, J. W., and Crawford, J. D.: Functional Endocrinology from birth through adolescence. Cambridge, Harvard, 1952.

6. Nelson, W. E. (Editor). Textbook of pediatrics, 7th edition, Philadelphia, W. B. Saunders Co., 1959.

7. Pickering, D. E., Fisher, D. A., Scott, K. G., Van Wagenen, G., and Smyth, F. S.: Growth and metabolism in normal and thyroid-ablated infant rhesus monkeys (Macaca Mulatta). VI. Am. J. Dis. Child. *86*: 574, November, 1953.

8. Pickering, D. E., Fisher, D. A.: Therapeutic concepts relating to hypothyroidism in childhood. J. of Chronic Diseases 7: 242, March, 1958.

9. Wilkins, L.: The rates of growth, osseous development, and mental development in cretins as a guide to thyroid treatment. J. Pediatrics, *12*: 429, April, 1938.

10. Lawson, D.: On the prognosis of cretinism. Arch. Dis. Child. *30*: 75, April, 1955.

11. Åkerrén, Y.: Early diagnosis and early therapy in congenital cretinism. Arch. Dis. Child. *30*: 254, June, 1955.

12. Smith, D. W., Blizzard, R. M., Wilkins, L.: The mental prognosis in hypothyroidism of infancy and childhood. Pediatrics: *19*: 1011, June, 1957.

13. Lowrey, G. H., Beierwaltes, W. H., Aster, R. A., Carr, E. A., Jr.: Early diagnosis and prognosis is congenital hypothyroidism. Postgraduate Medicine. 27: 33, January, 1960.

14. Bruch, H. and McCune, D. J.: Mental development of congenitally hypothyroid children; its relationship to physical development and adequacy of treatment. Am. J. Dis. Child. *67*: 205, March, 1944.

15. Personal communication from Dr. Robert E. Cooke.

> *I have three personal ideals. One to do the day's work well and not bother about tomorrow. . . . The second ideal has been to act the golden rule as far as in me lay toward my professional brethren and towards the patients committed to my care, and the third has been to cultivate such a measure of equanimity as would enable me to bear success and humility, the affection of my friends without pride, and to be ready when the day of sorrow and grief come, to meet it with courage befitting a man.*
>
> —William Osler, *Aphorism of William Osler*

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EDITORIALS

"Prophylactic" Castration

Therapy of female breast cancer is far from adequate at this time. Almost 75 per cent of women with breast cancer will ultimately die of its effects. Primary surgical therapy has changed little in over 60 years and the only progress in the most recent decade has been with new hormonal and chemotherapeutic agents aimed at eliminating foci of malignancy. That alteration of the hormonal milieu of metastatic disease is effective is emphasized by the 25 per cent of patients who demonstrate objective remission of their disease after castration or additive hormonal therapy.

The role of castration is well established as reasonable therapy for the already known metastatic deposits. But what about "prophylatic" castration? Elsewhere in this issue of CONNECTICUT MEDICINE is a provocative report by Doctors Allan Ryan, John Curry, and Henry Eisenberg on this topic. Unfortunately, as in other similar studies, retrospective analysis is necessary when dealing with this topic. There has not been as yet a prospective study to evaluate this challenging possibility—castrate and prevent metastases. Dr. Ryan's study hints, as other studies have done, that castration before metastases appear may be beneficial to the patient but none of the conclusions are statistically unequivocal.

The National Cancer Institute has been interested in this problem for some time, as have other independent investigators. Each comes to the same conclusion—a prospective, statistically randomized study must be done if the answer is ever to be determined. The Cooperative Breast Cancer Group of the Cancer Chemotherapy National Service Center has been considering such a program and it is hoped that when details are completed that many institutions will cooperate to find the answer.

Connecticut physicians have already demonstrated their willingness to help in clinical evaluation programs. The success of the project at Yale in evaluating hormonal agents in breast cancer has largely been the result of such cooperation. It is hoped that when a program to evaluate prophylactic castration is established that Connecticut physicians will continue their interest and aid.

I. S. G.

Sulphanilamide and Serendipidy

The average practitioner lacks the time to read critically the voluminous literature on any new drug, particularly the mechanism of action and the relative value of the various modifications that are quickly made available by our research chemists. As a consequence he tends to practice somewhat uncritically and is always subject to the "mischief of chance and clinical impression." Knowledge of how a drug works and of the rational steps taken to arrive at this knowledge would greatly increase the intellectual satisfaction from using them.

A valuable exercise in clinical pharmacology is to learn how the present knowledge of the benzothiadiazine diuretics developed, how they exercise their effects and why so many different derivatives were fashioned. These drugs have become extremely important to every physician because they have revolutionized diuretic and antihypertensive therapy. In doing so the studies have also served to clarify many aspects of electrolyte and water balance as well as tubular function. A recent review of these agents by Edson and Schluger[1] presents a fascinating tale in serendipidy.

When sulphanilamide first came into use it was quickly noted that in addition to anti-microbial action, it also possessed some diuretic properties as well. Patients with congestive heart failure receiving sulphanilamide excreted an alkaline urine containing increased quantities of sodium, bicarbonate and potassium and also lost weight. Further studies revealed that the observed diuretic action was produced by an inhibition of carbonic anhydrase, an enzyme which in the kidney normally causes an exchange of $Na+$ for $H+$. The result was excretion of bicarbonate and an alkaline urine. However for the diuretic effect, the required dose of sulphanilamide was large and undesirable side reactions were marked. In the hope of finding a clinically useful and orally effective diuretic, the research chemists Roblin and Clapp[2] attempted to modify the sulphanilamide molecule in such a way as to increase its diuretic activity. A whole series of highly active compounds came into being, heterocyclic sulphonamide derivatives all of whom were powerful carbonic anhydrase inhibitors. One of these acetazolamide (Diamox) was 300 times as potent in vitro as the sulphaniiamide. An even more potent compound was benzothiazole-2-sulphanilamide which is some 800 times as active in vitro. However in vivo it was completely devoid of diuretic properties, due to rapid metabolism and conjugation. We were left with acetazolamide which because of a loss of bicarbonate, tends to produce a hyperchloremic acidosis and therefore can only be used intermittently.

In 1957, Novello and Sprague[3] synthesized Chlorothiazide a drug with a new property, that of actively blocking sodium chloride reabsorption. By causing chloride excretion as well as sodium, its action was different from that of the carbonic anhydrase inhibitors, in that no bicarbonate was lost and hyperchloremic acidosis was avoided. Furthermore the compound was not metabolized and was excreted in the urine unchanged. The search for a compound with the greatest inhibition of carbonic anhydrase led to the fashioning of a substance in which this effect was the lowest while the saluretic effect was the highest. The impact of this kind of a diuretic on the treatment of hypertension will be mentioned below.

Several different derivatives of the benzothiadiazines have now been fashioned with a variety of claims for their efficiency. But how is one to assess the relative potencies and special properties? The clinical trials and extravagant clinical reports stand witness to the urgent need for a method that would permit a quantitative comparison of the different drugs in order to avoid giving "free reign to the mischief of chance and clinical impression." Gold and co-workers[4] using scientific principles commonly applied to animal bio-assay avoided the pitfalls of error and chance differencies. By an interesting statistical device they compared the diuretic effects of hydroflumethiazide (Saluron) with that of a standard dose of meralluride, on the weight loss of 28 edematous patients. It turned out that hydroflumethiazide in 0.4 to .8 gram oral doses was found to have 67 per cent of the efficiency of meralluride in the clearing of edema where as chlorothiazide had but 40 per cent of the efficiency of the mercurial.[5] Aside from the quantitative difference there was also a qualitative one since the maximum obtainable diuresis in a given period no matter how large the dose used, is less for chlorothiazide than for hydroflumethiazide. However, since maximum doses are hardly ever employed clinically, this finding is not so significant as would be information of the relative effects of these substances on hypertension. A subject which was not studied by Gold and his co-workers. Nevertheless a careful study of the relative effects of these saluretics on hypertension is of the greatest urgency since hypertension is more common than congestive failure and the use of these drugs has entered upon a much wider spectrum of medical therapeutics.

Much has been written recently upon the relation of salt to hypertension.[6] There is little doubt that salt is involved in the hypertensive state produced experimentally and that salt elimination can lead to declines in blood pressure in a fair proportion of patients. It is therefore not surprising that drugs that eliminate salt from the body should have been found to exercise an antihypertensive effect. The manner in which these drugs lower blood pressure is still under discussion. One group holds that the hypertensive action of the benzothiadiazine derivatives result from their natriuretic action. Another group holds that this is only part of the story and that we must search for an additional mechanism.[3]

The first group points to the reduction of extracellular fluid space, plasma volume and cardiac output following natriuresis and that this occurs after meralluride also. That oral salt loading, reverses the diazine effects and restores the blood pressure.

The second group points to the fact that the diuretic drugs have no effect on the blood pressure of normotensives. That the blood pressure is lowered in both compensated and decompensated patients; that the drugs have a more rapid effect on blood pressure than salt restriction alone, that the antihypertensive effect is often slower than the natriuretic effect and that the arterial resistance is lowered even after the plasma volume has returned to normal, although this finding is in doubt. It may be that in hypertension the lumen of the arterioles are reduced through swelling of their muscle cells from increased sodium content and that the elimination of the sodium enlarges the arteriolar lumen with reduction of the peripheral resistance. If it were possible to produce a derivative of the benzothiadiazines that would be hypotensive without being saluretic, new light would be thrown on this problem. An attempt has recently been made in this direction by Rubin et al.[7] Strangely enough the hypotensive effect resides not in the sulphamyl fraction, but in the other part of the benzothiadiazine ring.

From sulphanilamide to acetazolamide to benzothiadiazines we have a tale in serendipidy. Who could have anticipated that an antimicrobial substance would lead to control of edema and enlargement of our basic knowledge of renal tubular function and treatment of hypertension. Now what else?

L. H. N.

REFERENCES

1. Edson, J. N. and Schluger, J.: A review of the benzothiadiazine derivatives in relation to cardiovascular disease. Am. Ht. Jr., 60: 641, 1960.

2. Roblin, R. O., Jr. and Clapp, J. W.: The preparation of heterocyclic sulphonamides. J. Am. Chem. Soc., 72: 4890, 1950.

3. Novello, F. C. and Sprague, J. M.: Benzothiadiazine dioxides as novel diuretics. Jr. Amer. Chem. Soc., 79: 2028, April 1957.

4. Gold, H., Kwit, N. T., Messeloff, C. R., Kramer, M. L., Golfinos, A. J., Mehta, D., Zahm, W., and Warshaw, L.: Assay of two diuretics. J.A.M.A., 177: 239, July 29, 1961.

5. Gold, H. and others: Comparison of chlorothiazide and meralluride. J.A.M.A., 173: 745, June 18, 1960.

6. Nahum, L. H.: Salt and hypertension. Conn. Med., Dec. 1961.

7. Rubin, A. A., Roth, F. E., Winbury, M. M., Topliss, J. G., Sherlock, M. H., Sperber, N., and Black, J.: New class of antihypertensive agents. Science, 133: 2067, June 30, 1961.

Advances Of Disabled

A new $1,000,000 research-education-recreation building for the Human Resources Foundation, Albertson, Long Island, was dedicated recently.

The dedication of any new research and educational facility is significant. This dedication was particularly so because Human Resources Foundation is a very unusual organization.

It is the research and education affiliate of Abilities, Inc., a factory employing severely disabled, founded nine years ago in a rented garage on a loan of $8,000.

Abilities, Inc., now owns a modern manufacturing plant at Albertson, employing more than 400 severely disabled workers. Last year its business exceeded $2,000,000 and this year will probably exceed $3,000,000.

The company operates on a competitive basis in an industrial community depending on efficiency to maintain a high level of production. The employes are paid prevailing wages paying individuals and family heads.

Abilities, Inc., is a self-sustaining organization and does not solicit contributions from foundations or the public.

Soon after the founding of Abilities, Inc., it became apparent this organization offered unique opportunities for research and teaching. Its president, Henry Viscardi, Jr., therefore formed an affiliated nonprofit organization, the Human Resources Foundation, to conduct these activities.

Currently, the Human Resources Foundation is engaged in a number of research projects in which the techniques developed to probe outer space are being used to study the inner space of man's body and mind.

Illustrative of these studies is a project being conducted with the aid of a grant from the Office of Vocational Rehabilitation.

One aspect of this project is the application of space medicine techniques to industrial physiology.

Instruments are now being developed that will permit constant, sustained readings of a disabled worker's electrocardiogram, pulse, respiration rate, blood pressure, temperature and similar data while he is on the job.

This is done with transistorized apparatus weighing from six to eight ounces, including the radio transmitter. Eight different sets of data can be transmitted by radio to a central receiving station which records the findings on an eight-channel recorder.

When a disabled worker is being studied with the equipment, he also will be under observation by closed-circuit television. Thus, if the worker's blood pressure, pulse, electrocardiogram or respiration rates should suddenly change substantially, the observer can note the correlation of such changes with disturbing factors in his environment.

Such factors might be, for example, sudden noise, the presence of a supervisor, or a serious error in his work. In essence, the project is directed toward taking industrial physiology for the first time out of the laboratory into the plant.

The implications of such research are, of course, as important for so-called "normal" workers as those with physical disabilities.

Concurrently with the physiological studies, a team of psychologists is testing the workers at Abilities to measure such factors as an individual's need for achievement, affiliation and agression. One such test on attitude toward disabled persons already has been developed by the group and is now being widely used by other researchers.

Further along in the project, information derived from both the physiological and psychological studies will be analyzed with digital computers to determine correlations. The net result will be to discover, for example, if a person who shows a high degree of anxiety on a psychological test functions differently physiologically.

An interesting possible by-product of the research is that the telemetering instruments developed for the physiological research may prove to be extremely valuable in evaluation of the discriminating values of psychological tests. Physiological verification of psychological tests is now largely limited to correlation of responses on psychological tests with simultaneous responses to galvanic skin tests.

This is admittedly a crude technique and experimental psychologists are looking for new and more evaluation methods for their own tests. They may come through ability to measure various phychological reactions of a subject through telemetering while he is choosing his response on a multiple-choice psychological test.

In its nine years Abilities, Inc., has made great advances in breaking down the barriers of discrimination toward the handicapped by industry. Throughout the world specialized workshops for the handicapped are being organized after Abilities, Inc.

By Howard A. Rusk, M.D. Reprinted with permission of the author and of The New York Times.

Postgraduate Medical Education

"He who does not increase his knowledge decreases it."—Hillel

The practicing physician needs continuing medical education. He must be well informed because he will have at his disposal more effective drugs and more potentially harmful ones than ever before. He will also have available if not in his community, then in a neighboring one technological requirements for diagnosis and treatment. Both new drugs and new technology have increased the doctors responsibility for keeping abreast of expanding knowledge, complicated skills and newer drugs of modern medicine.

If the ultimate goal of professional education is the improvement of patients care, then the physician must be provided with better opportunities to keep abreast of medical advances and to cultivate his skills and judgment. Unfortunately the practicing physician has little time for reading and is unprepared to sift the mass of material that inundates him from many sources. The result is that one cannot depend on the distribution of medical literature for the doctors progress. The pharmaceutical industry was quick to grasp this fact and proceeded to supply the physician with information in palatable readily assimulated form. However, the "answers" are too easy because this method does not encourage the learner to exercise his critical judgment. It cannot, therefore, be a source of self education. Nevertheless, medical literature is a key instrument in continuing education of the physician but, alone, it is not sufficient.

The rapid advances in medical science requires that the physician go forward in his knowledge and skill otherwise his knowledge must decrease. On the other hand, the more he studies the more wisdom he will acquire. These self evident truths however seem not sufficient to encourage all physicians to keep in touch with medical advances through continued education. Volan[1] found in 1955 that too few physicians keep in touch with the advances in medicine. This was as true of recent graduates as well as of those long in practice since one-third of current graduates do not undertake any kind of continuing education. The American Academy of Medicine attracts but 20 per cent of general practitioners to its lectures and courses.

Lack of physicians interest can often be attributed to the type of program offered. Lectures, panel discussions, seminars, motion pictures and exhibits impart information only in a passive manner. Perhaps if evidence could be obtained about the influence of postgraduate study on a physican's performance, it would become apparent that the method of "passive study" is totally ineffective as a means of developing increasing ability to evaluate evidence and to analyze clinical problems which is the way that the physician grows in experience.

The science of learning has not been employed in planning postgraduate medical education. The medical teachers who know the field of medicine and general educators familiar with educational concepts and methods must get together to solve the problem. Like everything else the statement of the problem requires that we know the result of any educational program, to what extent it has served to stimulate intellectual growth. The poor attendance at meetings is the physicians way of voting against their usefulness to him.

At least two factors involved in poor attendance can already be identified; one lack of physicians interest, and second the absence of programs that have encouraged active participation on the part of the learner. Lack of physicians interest can often be attributed to the type of program offered. After all, a recipient of knowledge which is not geared to his needs will not be interested. He will remain passive. The arranger of programs and the teacher who presents them must have a lot of information about the practitioner himself before a realistic program of education can be planned. After all the practitioner is a product of many influences, his medical school experience, standards of medical practice in the community, the competition the doctor must meet, the potential case load he carries, his ambitions and personal problems. A program committee before recruitment of speakers and development of materials should determine first what the physician learner himself identifies as his educational needs. Even then a teacher who is not prepared for the kind of audience he is to address must fail. Therefore, it behooves program committees to select teachers carefully for their skill in teaching as well as their reputation as scientists or specialists.

Effective teaching must allow for maximum participation by the learner if he is to improve his skill in interpreting clinical data. Beside teaching valuable to any physician, is essential for those in need of refresher education. This is available in communities that are near medical schools and clinical centers. But in other areas revitalization of community hospitals as a setting for learner participation can be improved. Here ward rounds, conferences, clinics, periodic staff meetings devoted to learning can be encouraged. Consecutive case conferences have been found very successful in teaching especially if there is considerable participation by the learner. One method, a critical review of how a physician handles a case, has very great educational value for him but has as yet not become a widespread practice.

Studies of the favorable influence of practice in association with a partner or a group are urgently needed. If this is an important way in which physicians are helped to keep in touch with medical advances, it might well represent a desirable trend in future forms of medical practice.

Clearly the growth of medical knowledge and the necessity for continuing learning on the part of the physician has brought to the fore the whole problem of postgraduate education. "If institutions and organizations presently engaged in professional education cannot meet the needs, the time may come when an official agency will have to assume responsibility."[2] Heaven forefend.

L. H. N.

REFERENCES

1. Volan, D. D.: Postgraduate medical education in the United States. Report of the survey of postgraduate education carried out by the council on medical education and hospitals of the American Medical Association. 1952-1955, Chicago, American Medical Association, 1955, 184 pp.
2. The physician's continuing education. Editorial, Circulation, 24: 543, Sept. 1961.

Bone-Marrow Injections Tried In Radiation Victims

Results of bone-marrow injections given five Yugoslav radiation victims were reported in the Journal of the American Medical Association recently.

Marrow infusion "appears likely to have value as one of the measures" that may be used for persons involved in radiation accidents, Dr. Gould A. Andrews, medical division, Oak Ridge Institute of Nuclear Studies, Oak Ridge, Tennessee, said.

The development was termed an "historic trial of a new form of therapy" in an accompanying Journal editorial. The attempt to use marrow therapy in man was based on animal experiments, it said.

One effect of high-dose radiation is to suppress temporarily the production of red blood cells in the bone marrow. The bone-marrow injections were designed to replace this activity until the resurgence of the body's natural cell-producing marrow.

In an effort to determine the effect of marrow infusion, Dr. Andrews compared the recovery of a group of workers injured in a radiation accident at Oak Ridge who did not receive any marrow infusions with the four surviving Yugoslav radiation victims. Both accidents took place in 1958.

The symptoms found among the two groups indicated that injury, with one exception, was "considerably more severe" in the Yugoslavian workers, he said.

However, he said, recovery occurred at about the same time in both groups and one might argue that in the Yugoslavs, because of the higher radiation dose, spontaneous recovery would have come somewhat later without marrow infusion therapy.

COUNCIL RECOMMENDS AUTOMOBILE SEAT BELTS

At the Council meeting of January 17, 1962, it was voted to publicize the following resolution to physicians through CONNECTICUT MEDICINE.

RESOLVED: That the Council of the Connecticut State Medical Society urge every physician in Connecticut to install and use seat belts in his car as a safety measure for himself and his family, and as an example to his patients.

THE PRESIDENT'S PAGE

At the December 1961, Semi Annual Meeting of the House of Delegates of the Connecticut State Medical Society an extensive revision was effected in the by-laws of the association. Considerable time had been devoted to a study of the organizational rules of the Society in anticipation of the document which was approved by the House of Delegates. More than one subcommittee of the Council worked at length to simplify and coordinate the various committees and functions of the Society but to Dr. William J. Murray, Jr., and his committee members fell the main responsibility for the draft that the House of Delegates acted upon on December 7, 1961. Dr. Murray's committee carried out the responsibility with exceptional ability.

During his tenure as Delegate to the AMA the immediate Past President, John N. Gallivan, M.D., had the opportunity of observing a major organizational change that was carried out in the AMA with the advice of expert managerial consultants. Dr. Gallivan, as president of the Society, presented the Council with a complete renovation of our by-laws in conformity with the advice he observed being adopted in our national association and although the changes Dr. Gallivan outlined were not accepted in entirety he should be gratified that so much of what he suggested has been retained in our revised by-laws.

The procedure for the seating of Delegates at meetings of the House of Delegates has been simplified and clarified. Open, closed, and executive sessions of the House of Delegates are defined. Duties of general officers have been rewritten and provisions for succession in office are outlined. The Council still elects its own chairman but its membership has been increased by provision for an additional councilor at large from each component county association having a membership exceeding 750. In order to coordinate and improve communication of committee work, the standing committees of the Society have been grouped under seven divisional boards, each of which shall annually submit a report to the Council for transmittal to the House of Delegates. It is hoped that the divisional arrangement will improve the opportunity for the General Manager and the Council to be aware of the activity or lack of activity of the many committees of the Society. In a dynamic society, such as the State Medical Society, no by-law revision for long remains permanent but I believe these changes, will in the main, serve the Society well. Personally, I would have welcomed a change that would have afforded an opportunity for more flexibility of action by the officers of the Society between the meetings of the Council. Sometimes I know the affairs of the Society suffer because of this lack of mobility but I also know that for the present the House of Delegates is not ready to accept such a change.

Thomas M. Feeney, M.D.

FROM THE GENERAL MANAGER'S OFFICE

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Molehills Or Mountains

In "Newsweek" for January 22, 1962, we read with some dismay—albeit with not complete surprise—that in West Virginia, the first state "to participate in the medical-care-for-the-aged—the Kerr-Mills Act"— . . . "(the plan) has left state officials with a financial ulcer."

Pointing out that "in the first month of operation (November, 1960), medical care—exclusive of administrative costs—totalled $1,340 . . .", but that "by June, 1961, the monthly cost (had) rocketed to $391,859.", the reporter sums up West Virginia's fourteen-month experience with its Medical Assistance to the Aged plan as follows: ". . . the medical care cost came to $3,674,363, with the state's share totalling $1,056,338." which "does not include $1,500,000 in unpaid bills . . . or administrative costs of $350,000."

It appears from the news item that almost everyone down in the Blue Ridge Mountain area is becoming pretty upset about all this and that many people are now taking a rather dim view of the whole idea of giving "free" medical care away, even to a smallish segment of their elders. So state officials (and apparently the reporter, too!), not being able to see even a glimmer of silver lining through these dark financial clouds, are expressing hope that someone in Washington—someone like President Kennedy—may be prompted to search through the rubble of their crumbling Kerr-Mills program and perhaps turn up a hidden pearl which will provide him with, of all things, "a healthy (!) argument for medical care for the aged under Social Security."

Perhaps we're just a little tired and not thinking very clearly these days, what with this whole thing going on and on as it is, but how anyone could arrive at such a ridiculous conclusion from the facts presented is quite beyond us—way beyond! In just one state, and providing "free" care to only those "medically indigent" aged who have demonstrated reasonable financial need, welfare officials have found that practically every qualified pensioner admitted to a hospital stays for the full limit of thirty days; that patients who had been getting along on two drug prescriptions, suddenly were found to be in need of as many as eight (financed by MAA); and that because of a $10 fee allowed for specialized treatment, a great many claims were being filed by doctors who classified themselves as specialists. And so on and so forth.

Classifying these findings as "abuses", West Virginia's welfare directors are not taking this thing lying down, or so it appears. First off, they issued a fiat imposing "stiffer eligibility requirements, which sliced the number of eligibles about in half." This action, expressed in simplest terms, means that by a stroke of the pen the government has just taken away free health care from 50 per cent of the people to whom it was promised. Efficient? You bet! Effective? Yes, sir! Make good sense? Not so you could notice it!

Having summarily disenfranchised about one-half of the older patients, the welfare folks moved surely and swiftly over into the professional area. No longer will hospitals be paid $35 a day per patient, as called for in their "contract" with the authorities; they now must "make do" with only $20 a day per patient. Some contract! Could Blue Cross get away with this? Could a private insurance carrier? No, sir—not and stay out of jail!

But government not only can do that—it can do more. Drug prescriptions have been changed in mid-stream from a no-limit basis to "wholesale price plus a dollar handling charge", without so much as a "by-your-leave" to the pharmacist; just "do it our way or you're breaking the law". Shades of Jesse James!

And what about the doctor—that frayed, soggy football almost everyone's taking a kick at these days? Will he be allowed to go on "robbing" the West Virginia taxpayers of $3 every time he takes care of an MAA patient? He most certainly will not! He'll take $2 a call and like it! Who does he think he is, anyway? Why even an electrician in New York City only gets $4.90 an hour plus overtime for the services *he* performs, and look at the education and training an electrical worker has to have!

As a consequence of these cutbacks, though, (Newsweek tells us) most hospitals and doctors have taken themselves off what the reporter calls a "non-fat-free MAA diet", and no longer will agree to participate in the program. Now why, you may ask, would anybody want to go and do that? The Mountain State's welfare officials think *they* have the answer. Hospitals, they say, have been "keeping" MAA patients in much longer than necessary—(presumably against the patients' will); pharmacists, they allege, have been filling altogether too many prescriptions——— (who knows, maybe at the point of a gun); and physicians, they suggest, have been seeing more patients than they should — (wouldn't put it beyond them to get out and drum up that lucrative "$3 a head" business.)

What fools these mortals be! Are they so unbelievably short-sighted they can no longer put the shoe on the foot it really fits? Haven't they heard that bar rooms eliminated the free-lunch counter because it became altogether too well patronized by the customers? Don't they realize the incidence of alcoholism would rise sharply if, through some magic similar to Social Security medicine, whiskey could be obtained as cheaply as water?

And so with medical care, can they not understand that when health service is offered "free" to all or a part of the population, the few may use it for the purposes intended but the many—millions upon millions of basically honest Americans—will gather 'round the festive board to get their full share of the gravy being handed out? Why should anyone suffer so much as a twinge of conscience about gorging himself on medical goodies, when he has been given to understand by some Great White Father that he may do so as "a matter of right"? That the public pitcher really has no bottom? That the right hand need never know what the left hand is doing? That the government can play Santa Claus three hundred and sixty-five days a year?

As we said, the news from West Virginia is dismaying, even though the reporter tries to wrap up his piece on an optimistic note by assuring us that while "the proponents of the Kennedy (King-Anderson) bill agree no medical care program could eliminate all abuses", they promise they will "try to make their (Social Security) plan as foolproof as possible." This kind of reasoning certainly calls to mind our old professor in college who used to tell us that "some people make the same mistake a thousand times, and they call it experience!" But it looks as if the Kings and the Andersons, the Ribicoffs and the Kowalskis, the Reuthers and the Cohens, will never learn—either that, or they won't even try to. After all, they keep saying, "the people want this" and they're the ones who vote, so damn the torpedoes and full steam ahead!

We, in Connecticut, are now on the verge of embarking on a Kerr-Mills program of our own. We think it's a good one and, if we all try hard, perhaps we can profit from West Virginia's mistakes, work conscientiously to avoid them, and honestly seek to fulfill our purpose of "helping those who need help" with their medical care problems. We must hope sincerely no abuses will arise from any source, no matter how unlikely that may seem at the moment.

But if we can't make Kerr-Mills work for our semi-indigent aged *locally*—if we can't even manage to keep the sound operation of *Connecticut's* medical aid separate and distinct from unbridled boondoggling—then we might as well face up to the fact, once and for all, that most any kind of a *nationwide* medical plan will be bound to have two serious drawbacks for Americans—first, it just won't be any good and, second, it'll cost them their shirts to run.

Looking at these disturbing facts through any eyes but those of overly-ambitious politicians, what possible justification can there be for the Congress to legislate the transformation of multiple, relatively small, molehills of state-level financial difficulty into one single monstrous mountain of federal financial catastrophe? Can't you almost *feel* the President "slicing" about 10 million of those "eligibles" in half? He could do it, too, you know.

Voluntary health insurance, anyone?

W. R. R.

MEDICAL MEETINGS

May 2-3-4—Annual Meeting Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

May 3-4 — New England Health Education Association—Spring meeting—Andover Inn, Andover, Mass.

May 18-19 — Connecticut Society American Board Obstetricians and Gynecologists Travel Club meeting in Montreal.

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

Special Article

The Foreign Medical Graduate And The Educational Council For Foreign Medical Graduates

JOHN C. LEONARD, M.D.
Hartford

BEFORE World War I, the British Isles and Europe were the meccas of post-graduate medical education for physicians from the United States. Between 1925 and 1940 increasing numbers of foreign physicians sought medical training or political asylum in this country. Immediately following World War II, the numbers of graduates from foreign medical schools coming to the United States increased sharply. In 1948, in order to encourage international good will, the Congress of the United States passed the United States Information and Educational Exchange Act which became effective on July 1, 1949. This act permits the granting of visas for "educational purposes" to foreign students from most areas of the world. However, this act did not stipulate any educational requirements for the recipients of these student visas.

By 1954 it became obvious that many of the graduates of foreign medical schools who were coming to this country under the provisions of this act of Congress could not meet the minimal educational and training standards required for graduation from the medical schools of the United States and Canada, and by the state boards of medical licensure. Between 1954 and 1957 this matter received much attention by the organizations responsible for graduate medical education in this country; and, in order to deal with the problem, the Educational Council for Foreign Medical Graduates was formed. This Council was, and is, sponsored by the Association of American Medical Colleges, the Council on Medical Education and Hospitals of the American Medical Association, the American Hospital Association, and the Federation of State Medical Boards of the United States.

The purposes of the Educational Council for Foreign Medical Graduates are:

1. "To promote opportunities in the United States for advanced studies in medicine so that, hopefully, the level of medical care throughout the free world might be raised;"
2. "To provide information to foreign medical graduates seeking graduate training as interns or residents in United States hospitals;"
3. "To provide foreign medical graduates, while still in their own countries, with an opportunity to establish their qualifications for assuming intern or residency positions in American hospitals 'by means of a qualifying examination';"
4. "To determine that foreign medical graduates have met the minimum level of attainment expected of graduates of the United States and Canadian schools;"
5. "To insure that 'approved' United States hospitals will be securing graduates of 'bona fide' foreign medical schools with a satisfactory command of English and a comprehensive knowledge of clinical medicine."

By 1956 it became increasingly obvious that great numbers of foreign medical graduates coming to this country had no intention of returning to their homelands and, therefore, that one of the primary purposes of the United States Information and Educational Exchange Act of 1948 was failing

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in its intent. Therefore, the above act was amended by the 84th Congress on June 4, 1956, restricting a citizen of a foreign country who is here under the exchange visitors' program from being granted an immigrant visa or adjustment of status to that of a permanent resident in this country or for a non-immigrant visa, "until it is established that such person has resided and been physically present in a co-operating country or countries for an aggregate of at least two years after departure from the United States." Furthermore the United States Department of State on April 24, 1959, set a limit of five years on the stay of foreign medical graduates serving internships and residencies in this country as an expression of the intention of Congress that the exchange visitor "should return to his homeland." This last requirement has been "judiciously implemented."

Additional background of importance for full appreciation of the problems with which the E.C.F.M.G. has had to deal was the rapid increase in "approved" internships and residencies in the hospitals of this country following World War II. Internships have increased more than 50 per cent in number in the past two decades while in the same time the availability of residency positions has increased almost 600 per cent!

Table I

YEAR	APPROVED INTERNSHIPS	APPROVED RESIDENCIES	AMERICAN MEDICAL GRADUATES
1930	5,531	2,600	4,565
1941	8,182	5,256	5,097
1945	8,190	8,930	5,136
1948	9,200	17,923	5,543
1950	9,370	19,364	5,553
1960	13,032	31,733	7,081

There were several important reasons for this rapid increase in the positions available for graduate medical training:

1. The very large number of medical veterans of World War II who insisted on additional in-hospital training before resuming practice;

2. The increasing popularity of and demand for specialty training;

3. The firmer requirements of the Specialty Boards for residency training prior to eligibility to certification as a specialist;

4. The elimination of the eighteen month to twenty-four month pre-war internships under the pressure of the need for physicians by the armed forces during the war and selective service requirements since that time;

5. The rapid increase of medical and allied scientific knowledge with the resultant necessity for more equipment in medical schools, university hospitals and non-university hospitals, and the twenty-four-hour-per-day coverage thereof by medical graduates;

6. The increased demand, on the part of the public, for more hospital care; and the consequent demand on the part of the hospital's attending staff and administration for greater twenty-four-hour-per-day coverage by interns and residents. This feature was closely linked with the rapid increase of Blue Cross, Blue Shield, and other medical care insurance plans following World War II.

7. An ancillary reason has been the awareness on the part of hospitals, large and small, that a new source of house staff help had become available, that is, the graduates of foreign medical schools.

As a result of these pressing needs and demands during the fifteen years following World War II, it is now obvious retrospectively that many of the internships and residencies that had been "approved" do not now have the quality meritorius of such approval. Actually it has been estimated that twenty-five to fifty per cent of presently available internships and residencies are not now of such quality as to merit approval for graduate training.[1, 2, 3]

If we use the available yardstick provided by the report of the Advisory Committee on Internships of the Council on Medical Education and Hospitals of the American Medical Association published in the *Journal of the American Medical Association,* February 7, 1953, there is, indeed, much truth in the above statements.[4]

Table II shows the rapid increase in internships and residencies in the past decade along with the marked increase in the number of foreign graduates in these positions.[5]

To dispel any possibility that our purpose may be misunderstood, we wish to emphasize that many

Table II

A. Internships in the United States

		INTERNSHIPS FILLED BY	
YEAR	AVAILABLE INTERNSHIPS	UNITED STATES GRADUATES	FOREIGN GRADUATES
1950	9,370	7,030	722
1951	10,044	6,750	1,116
1952	10,548	6,292	1,353
1953	10,542	6,488	1,787
1954	11,048	7,305	1,761
1955	11,616	7,744	1,859
1956	11,895	7,905	1,988
1957	12,325	8,119	2,079
1958	12,469	8,037	2,315
1959	12,580	7,708	2,545

B. Residencies in the United States

YEAR	AVAILABLE RESIDENCIES	RESIDENCIES FILLED BY	
		UNITED STATES GRADUATES	FOREIGN GRADUATES
1950	19,364	13,145	1,350
1951	20,645	13,618	2,233
1952	22,292	13,832	3,035
1953	23,630	14,817	3,802
1954	25,486	17,219	3,275
1955	26,516	17,251	4,174
1956	28,528	18,259	4,753
1957	30,595	19,433	5,543
1958	31,818	20,716	6,042
1959	31,733	20,619	6,912

graduates of foreign medical schools who are now receiving graduate training in this country are outstanding doctors of high quality. For many years the competence of graduates of foreign medical schools was judged solely on the basis of the medical school from which they had graduated. The great virtue of the American Medical Qualification examination of the E.C.F.M.G. is that it tests the quality of the individual rather than the medical school from which he graduated. The successful completion of the E.C.F.M.G. examination is now a prerequisite for securing a visa, permitting the medical graduate to come to this country for internship and residency training; and if the physician successfully completes the examination abroad, much grief and potential misunderstanding will be avoided by everyone concerned.

Unfortunately in the past, graduates of foreign medical schools, many of whom were not able to obtain an adequate medical education, found hospital training positions of borderline or inadequate quality. Many of these graduate medical positions were found in non-university hospitals. In such positions the foreign medical graduate frequently was nothing more than a "hands and feet" type of servant to the hospital, its staff, and its patients. However, now many non-university hospitals are realizing their important responsibility to the graduates of foreign medical schools within them and are setting up real educational and training programs that are often led by full time or part time Directors of Medical Education.[6,7] Although such programs are somewhat expensive to the hospital, hospital boards of directors must adequately support them; and these programs must continue to increase in quality if we are not to fail in our responsibility to the foreign medical graduates who come to our shores.

It has been shown that approximately 10 per cent of foreign medical graduates coming to the United States are sent by their own grovernments or private foundations. These people usually find positions in university hospitals. The remaining 90 per cent come at their own (or family) expense or are financed in part by hospitals. These in turn generally find positions in non-university hospitals.[8,9]

Criticisms Of The Educational Council For Foreign Medical Graduates*

There have been many highly emotional criticisms, without foundation in fact, aimed at the E.C.F.M.G. and its sponsoring agencies during the three years in which six of these examinations have been given.[9,10]

It is most unfortunate that unfounded statements such as the following have been published for "news" value: "Many foreign students argue that the examinations are unfair, claim they include subtly worded, semantic trap questions that would be tricky even for a native-born American. Critics, also, insist that the American Medical Association purposely makes the examinations tough, to maintain a monopoly for United States doctors —a charge the American Medical Association hotly denies."[10]

There is, also, much loose talk concerning the number who may fail the April 4, 1961, E.C.F.M.G. examination and how they will "lose face" if forced to return to their homeland having failed the examination. One might as readily ask about the large number of young American doctors who fail their Board examinations or an even younger group who fail their college entrance examinations in this country! We certainly cannot improve international relations by lowering our medical standards to the point of returning medical training to the pre-1910 era of the Flexner report. Actually, we would be doing a serious injustice to those foreign graduates who have worked hard and successfully in meeting our standards, were we to lower our standards at such a critical time!

Before we answer these accusations, it should be stated frankly that no "perfect examination," satisfactory to everyone, has ever been or ever will be devised. However, on the basis of three years of personal experience with the construction and giving of these examinations, we should like to answer the most frequent criticisms:

CRITICISM 1: "A special examination of greater difficulty is given to foreign medical graduates than to graduates of the medical schools located in the United States and Canada!"

ANSWER: This criticism is completely unwarranted. Only four of the simplest types of questions are used in the E.C.F.M.G. examinations; four of the more difficult types of questions asked of United States medical school graduates are not asked in the E.C.F.M.G. examination. In fact, every question included in the E.C.F.M.G. examination has been used for the examination of graduates of United States schools before it is ever included in an E.C.F.M.G. examination. Because this has been done, a sound and objective evaluation of the difficulty of each question can be made. On the basis of experience gained during the past three years, it can be categorically stated that *only one out of every 2,000 graduates of United States and Canadian medical schools would obtain a score of less than 70* in any of the E.C.F.M.G. examinations given to date. Consequently, by our United States standards the E.C.F.M.G. examinations are *certainly not more difficult*. They can be proven to have a passing point set at a minimum level of medical knowledge.

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* *Reprinted from The Journal of the A.M.A., 176, 1013, 1961.*

In addition, the E.C.F.M.G. Examinations Committee exerts a great deal of effort to make the questions readily understandable by eliminating abbreviations, proper names, idiomatic expressions, substituting more basic English, eliminating ambiguities, and eliminating questions pertaining to localized geographical medical problems. We have felt that this approach to assembling an examination is sound in that from a pragmatic point of view only information which is considered basic to world medicine is included. In other words, the Committee has tried to include in the examinations only universally taught and well accepted and understood items of medical knowledge. It is obviously a *special* examination, but certainly *not one of greater difficulty!*

CRITICISM 2: "There is not enough time allowed for the examination!"

ANSWER: We want our evaluations to be as accurate as possible. The longer we make our examinations, the less will be the errors in measurement. Actually, the time that was allowed for American medical school graduates to answer the same number of questions asked in the E.C.F.M.G. examination was only *four hours;* while the foreign medical graduates are allowed *six and one-half hours!*

Furthermore, we have studied the answer papers of those individuals who failed to complete the examination (about 2 of every 100 who take it) and found that (for these 2 out of 100) if we extrapolated their performances on the section of the examination they did complete, fewer than one out of twenty of the group not completing the examination would have passed the examination. This all adds up to the fact that the allowance of additional time could help no more than one individual out of every one thousand who take the examination.

CRITICISM 3. "The examination is unfair because of the use of multiple-choice questions!"

ANSWER: The use of multiple-choice questions hase been limited to the simplest types of questions, and complicated modes of presentation have been avoided. Official booklets are distributed, in advance, to all E.C.F.M.G. applicants to acquaint them with the item types used and how to answer them properly.[11] Recently there has been published an inexpensive paper-back volume, "Multiple Choice Examinations in Medicine; A Guide for Examiner and Examinee," published by Lea and Febiger, Philadelphia, 1961.[12]

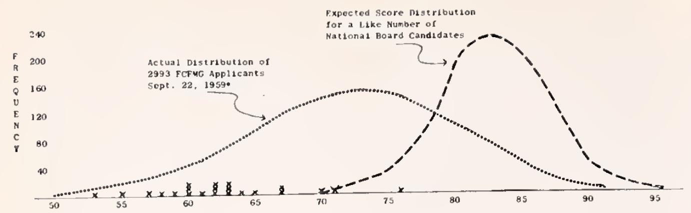
The alternative to the multiple-choice type of question would be a written question. This would increase the handicap of language, not decrease it, and it would render the objective evaluation of the answers almost imposible. Allowing only two hours for the reading of each examination, the last examination given would have required more than 17,000 man hours of work to read, or 10 men reading daily for 40 weeks! Impossible!

CRITICISM 4: "Foreign graduates are penalized because they are not adept in the use of English!"

ANSWER: To ascertain whether this was a significant factor in a students performance on the examination, the effect of English versus non-English medical instruction upon the performance of all applicants taking the examinations *in foreign centers* from the initiation of the program through the March, 1960, examination was checked. The total group taking the examinations abroad consisted of 2,419 persons. Of this number, 799 physicians came from schools *in which the instruction was in English,* and 1,620 of them came from schools *in which the instruction was in a language other than English.* Of the latter 1,620 physicians 535, or exactly 33 per cent, obtained passing scores of 75 or above, and of the former 799 (instruction in English), 266, or exactly 33 per cent, obtained passing scores. *The point of great interest is that in both instances 33 per cent passed the examination!* The fact that the two percentages are identical in the two groups definitely indicates that it is *medical knowledge* and *not facility with English* that determines whether or not a physician passes the E.C.F.M.G. examination.

CRITICISM 5: "The examination is too difficult!"

ANSWER: The answer to this criticism is obvious as one compares the following distribution curves of scores on the same questions made by American medical graduates and by foreign medical graduates. In view of the fact that the E.C.F.M.G. and its sponsoring bodies have been placed under



The x's represent the actual scores obtained by 22 nurses.

*This number differs from that in Table III, as it does not include 75 physicians for whom papers were not available when the distribution was obtained. Scores were grouped in intervals of five for plotting.

FIGURE I

considerable pressure to lower the "passing" grade, we decided to give the E.C.F.M.G. examination to a group of nine Hartford Hospital School of Nursing Faculty members as well as thirteen senior student nurses who were just completing their work for the R.N. diploma in a non-university hospital school of nursing. The results of this test are shown in Figure I. One nurse passed with a grade of more than 75 and two others received "near passes" between 70 and 74 (the grades with which foreign medical graduates receive a temporary two-year certificate). Three other R.N.'s received grades between 65 and 70 so that if the E.C.F.M.G. had responded to the pressure to lower the passing grade to 65, six of the twenty-two nurses, or 27.2 per cent, would have had grades above this level while three, or 13.6 per cent, received pass or "near pass" grades at the present level of scoring! In other words, of this group of nurses, one nurse had medical knowledge greater than 65 per cent of all the graduates of foreign medical schools tested; and the average nurse, including the student nurses, was better than 15 per cent of foreign medical graduates. The lowest nurse score was no worse than the least knowledgeable foreign educated physician who took the examination!

It is obvious that if we were to lower our examination standards any further, *we might do better to turn over to our better nurses those medical duties now performed by many graduates of foreign medical schools serving in the hospitals of our country!*

Educational Council For Foreign Medical Graduates Results To Date

Six E.C.F.M.G. examinations have now been given. The data for each administration are presented in Table III. The percentage figures for the complete set of six examinations cannot be computed directly from the table because the figures are complicated by the fact that there are repeaters taking the examination. Four applicants have actually taken the examination five times.

After adjusting the figures for those repeating, we found that 17,828 foreign educated physicians had taken the examinations. Of these 8,482, or 47.6 per cent, secured passing scores of 75 or better. This number checks with the total given in Table III, but the number in the "temperary certificate" or "near-pass" category will not check because 1,173 of those in that category have successfully repeated the examination and are now in the 75 or better group. This leaves 4,106 or 23.0 per cent in the temporary certificate category (scores of 70-74). Thus, of the total of 17,828 physicians taking the examinations, 12,588, or 70.6 per cent, have qualified for either a permanent certificate or a temporary certificate which entitles them to graduate training in this country. In many states those wtih permanent certificates are admitted to state medical board licensing examinations.

Some hospitals have complained that they did not know that a "deadline" had been set beyond which they could not retain approval of their grad-

TABLE III

EDUCATIONAL COUNCIL FOR FOREIGN MEDICAL GRADUATES
SUMMARY OF EXAMINATION RESULTS

	TOTAL TAKING EXAM.	TOTAL PASSING EXAM.		TOTAL NEAR-PASSING EXAM.		TOTAL QUALIFYING ON EXAM.	
Examination		75+		70-74		70+	
	N	*N*	%	*N*	%	*N*	%
March 25, 1958							
in U.S.	298	152	51.0	51	17.0	152	51.0
Sept. 23, 1958							
in U.S.	707	371	52.4	193	27.3	564	79.8
Abroad	137	47	34.3	33	24.1	80	58.4
Total	844	418	49.5	226	26.8	644	76.3
Feb. 17, 1959							
in U.S.	1278	616	48.2	341	26.7	957	74.9
Abroad	494	153	31.0	110	22.3	263	53.2
Total	1772	769	43.4	451	25.5	1220	68.8
Sept. 22, 1959							
in U.S.	2351	1088	46.3	601	25.6	1689	71.8
Abroad	717	282	39.3	141	19.7	423	59.0
Total	3068	1370	44.7	742	24.2	2112	68.8
March 16, 1960							
in U.S.	4909	1650	33.6	1118	22.8	2768	56.4
Abroad	1146	347	30.3	235	20.5	582	50.8
Total	6055	1997	33.0	1353	22.3	3350	55.3
Sept. 21, 1960							
in U.S.	7309	3222	44.1	2884	28.5	5306	72.6
Abroad	1405	554	39.4	372	26.5	926	65.9
Total	8713	3776	43.3	2456	28.2	6232	71.5
Total Examinations:	20750	8482		5279		13761	66.3
Total Examinees:	17828	8482		4106		12588	70.6

uate training programs unless those members of their house staff who were graduates of foreign medical schools had passed the E.C.F.M.G. examination; had secured a temporary two-year ("near-pass") certificate; or had already been licensed by a state medical examining board. Many articles have appeared during the past three years warning hospitals of the "deadline." The first deadline was set by the sponsoring agencies at July 1, 1960, then extended to December 31, 1960, and now essentially it has been extended to June 30, 1961, (a) providing the remaining unexamined foreign medical graduates take the examination scheduled for April 4, 1961,[13,14,15,16,17,18] and (b) providing uncertified candidates are registered in a special and temporary educational program approved by the Council on Medical Education and Hospitals of the American Medical Association.

The argument is frequently used that our plan of "prohibitive" examinations for foreign medical graduates is "playing into the hands of the communists." It is obvious from the data presented in this article that the examination is *not prohibitive* and consequently such arguments are specious. Nontheless the above argument needs a positive answer. One cannot gain good will by attempting to provide an educational experience to persons who cannot profit from it and certainly one cannot gain good will by masquerading.

Dr. Willard C. Rappleye, President of the Josiah Macy, Jr., Foundation, has pointed out as follows: "Serious damage may be done to international good will through those who come here with the impression that they will obtain graduate medical training, which, when under the proper auspices in this country, is unequalled in the world. The false claims of educating them in those hospitals which offer no instructional plan will have an adverse effect on international relations."[18,19,20,21]

Dr. John McK. Mitchell, Dean of the University of Pennsylvania Medical School, has most ably stated the problem of the foreign medical graduate with which we are faced as follows:[22] "In considering the graduates of foreign medical schools, it must of course be understood that we speak in generalities, that there are excellent medical schools in other countries, and that the capability of many of the individual foreign graduates is very high. America has always been a land of opportunity, and we hope always will be. There is no desire to exclude the able, well-trained physician; he is more than welcome. However, it is our belief that the great majority of physicians now coming to this country have through no fault of their own had grossly inadequate preparation. We have a strong obligation to see that the American people receive the best medical care. . . . We must see to it that the hospital on whose staff we serve does not accept for training physicians with inadequate and unverified medical school preparation. Also, on the other hand, we must not permit the accepted foreign physicians to be exploited as cheap labor. Those who will be returning to their own countries should have received the maximum educational benefit from their hospital experience with us. Those who intend to remain in this country will obviously seek to obtain a license at the conclusion of their hospital training. Inadequate basic schooling upon which is superimposed nothing more than several years in a specialty hospital, such as one caring for psychiatric or tuberculous patients, is poor preparation, indeed, for the practice of modern medicine. . . . It is ironical that this danger to our medical standards is augmented by our having been at such pains to make the product of American medical schools so uniformly good that the public has lost wariness in the choice of a physician. Thus it becomes additionally our duty today to alert medical men and legislators to the potential seriousness of this situation so that firm steps may be taken to prevent unqualified physicians from being granted licenses to practice medicine."

So that we may fully appreciate the total magnitude of this problem, we wish to call your attention again to Tables I and II in their relationship to the problem of American graduate medical education. Thus it will be noted that 25 per cent of internships in American hospitals already are occupied by graduates of foreign medical schools as well as 25 per cent of the residency positions in our hospitals. It has been estimated that approximately 33 per cent of total positions in our hospitals are so occupied. This additional number, bringing the totals to approximately 15,000 graduates of foreign medical schools in this country, includes those on immigrant quotas plus those who are working in "non-approved" residencies and fellowships in our hospitals.

The National Committee for Resettlement of Foreign Physicians[23] states: "These (the E.C.F.M.G.) examinations insure that only qualified physicians receive hospital appointments in the United States. The results of these examinations are of great help to our committee in the evaluation of professional competence. This has been one of our most complex problems."

It is obvious, therefore, that if we are to provide the best available training to our foreign medical colleagues, while remaining aware of our medical responsibility to the American public,[24] we must turn our best efforts to the following:

1. Support the Educational Council for Foreign Medical Graduates in its efforts to fairly ascertain the fitness of the graduates of foreign medical

schools for internships and residencies in hospitals in the United States by examinations given in the fifty-eight foreign centers now established throughout the non-communist world. If this phase of the work has our support and all candidates are examined before coming to the United States, much frustration and disappointment will be avoided by everyone concerned, at home and abroad.

2. Constantly work toward improving the quality of all American graduate training programs actually and potentially occupied by our foreign medical colleagues. This, also, means that inadequate programs should be eliminated.

3. Continue to provide all possible additional training for foreign medical graduates in this country for:

a. Improvement of language ability,

b. Improvement of clinical experience and supportive basic science knowledge.

c. Improvement of understanding of our American medical customs and ethics in patient care,

d. Improvement of their understanding of our social customs and responsibilities in the American way of life.

Only with the total assistance and co-operation of our American physicians, our hospitals, and with the understanding and co-operation of our state and federal government, can this be accomplished. But what worthwhile goals are the improvement of our international relations, the constant improvement of medical care throughout the world, and the maintenance of quality medical care for our American people!

Acknowledgments

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REFERENCES

1. "Report on Seminar on Graduate Medical Education in Non-University Hospitals," (Beverly Hospital, Beverly, Massachusetts), January 9-10, 1959, pp. 1-74.

2. "Third Annual Seminar on Graduate Medical Education," (Beverly Hospital, Beverly, Massachusetts), October 21-22, 1960, pp. 98-101.

3. "A Doctor's Size Up of the Crisis," (Interview with Dr. W. Rappleye, Dean Emeritus, Columbia College of Physicians and Surgeons), *U.S. News and World Report* (November 30, 1959).

4. "Report of the Advisory Committee on Internships to the Council on Medical Education and Hospitals of the American Medical Association," *The Journal of the American Medical Association,* February 7, 1953.

5. *The Journal of the American Medical Association,* (Internship and Residency Number), 174: 569-818, October 8, 1960.

6. "Program for Graduate Training in Non-University Hospitals," (Leonard, John C., M.D.), *The Journal of the American Medical Association,* 154: 1213, 1954.

7. "The Non-University Hospital and Postgraduate Medical Education," (Leonard, John C., M.D.), Journal Student American Medical Association, March, 1954.

8. "Open Doors," 1960, Report on International Exchange, Institute of International Education (One East 67th Street) New York 21, New York.

9. Bulletin of the Hospital Council of Greater New York, November, 1959.

10. *Time,* December 6, 1960.

11. Brochure Describing the American Medical Qualification Examination of the Educational Council for Foreign Medical Graduates, (1710 Orrington Avenue, Evanston, Illinois).

12. "Multiple-Choice Examinations in Medicine; A Guide for Examiner and Examinee" (Hubbard, J. P. and Clemans W. V.), Lea and Febiger, Philadelphia, 1961.

13. *Medical Times,* May, 1958, Educational Council for Foreign Medical Graduates, Smiley, D. F.

14. "Educational Council for Foreign Medical Graduates Gets Under Way," (Smiley, D. F.), *The Journal of the American Medical Association,* 167, May 31, 1958.

15. "Educational Council and the Foreign Intern Crisis," (Knutti, Sarah H.), *Hospitals,* 34: 66, November 16, 1960.

16. "Hasta la Vista," (Editorial), *Modern Hospital,* 96: 57, January, 1961.

17. "Hospitals, Foreign Doctors Face Certification Date," American Medical Association News, December 28, 1959.

18. Medical Education in the Community Hospital: A Symposium, Yale-New Haven Medical Center, November 23, 1960.

19. First Annual Conference on Graduate Medical Education, University of Pennsylvania Graduate School of Medicine, December 3-4, 1959.

20. "The Foreign Graduate Problem," (Rappleye, W. C.), *Hospitals,* 35: 4, (February 16), 1961.

21. Second Annual Conference on Graduate Medical Education, University of Pennsylvania Graduate School of Medicine, December 1-2, 1960.

22. "Current Problems in Medical Education," (Mitchell, John McK., M.D.), *Connecticut State Medical Journal,* 19: 192, 1955.

23. National Committee for Resettlement of Foreign Physicians, Annual Report, p. 10, 1958.

24. *Hospitals,* 35: 5, pp. 151-152, Editorial, March 1, 1961.

Is Social Security Medicine Necessary?

William R. Richards, M.D.
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An address delivered at a meeting of the New Haven Rotary Club January 9, 1962

Mr. Chairman, and members of New Haven Rotary:

Before considering whether Social Security medicine is necessary, I think it is important to understand just what is meant by that term. Such a system of medical care would be financed, as its name implies, by levying additional and progressively higher Social Security taxes on every working person in the nation. It would be altogether compulsory, in that no one would be granted a choice as to his participation or his willingness to be taxed for this purpose, and no recognition would be made of any preference he might have as to where and from whom he wished to obtain his personal health services.

The program being offered the American people today is seemingly directed only toward those over 65 years of age, but let us keep in mind that the administration's so-called "medical care for the aged" proposal of 1962 is but the most recent—and least pretentious—of a long series of attempts to legislate the destruction of our free-enterprise system of medicine in favor of some type of national health service. In the late 1940's, the Wagner-Murray-Dingell Bill was placed before the Congress and proposed that everyone—young and old alike—get their medical care under government auspices, whether they wanted to or not. We believe the legislators of that day were wise in firmly rejecting the proposal. Some ten years later, however, the Forand Bill was introduced, which offered only to eligible old people a rather tempting package of health services financed through the OASDI mechanism. In 1957, and again in 1959, after lengthy hearings, the House Ways and Means Committee voted by two and three to one majorities not to report out the Forand Bill on the grounds that it was neither desirable, necessary or fiscally practical. But now, in the early 1960's, the same people are back again with an even more limited proposition—the King-Anderson Bill—which is still only for the retired aged, but is much less generous in the amounts of medical care the government would be required to pay for.

A Foot In The Door

Thus we see that over the past twenty years or so the scheme remains much the same, but the immediate objectives have been cut back substantially. Apparently the strategy of the "pushers" of this kind of medicine for the United States is to reduce its scope and conceal its true purpose to whatever degree is necessary to divide opinion among those who provide and those who use health services. If at first, everyone rejects all of their plan, they are hopeful that perhaps certain groups can be persuaded to gingerly accept some of it. In the words of former Congressman Aime Forand of Rhode Island, who certainly reflects the views of most who favor this kind of thing: "Once we pass a basic bill—once we get our foot in the door—we can then expand it to whatever extent we want to."

So, we in the medical profession, among many others, are not only deeply concerned about the dangers inherent to this proposal—modest as it may seem on casual examination. We are equally concerned about the long range objectives and motives of those who, as the President put it the other day, "are really going to push for this one!" I suppose most doctors are probably thought to be partial to the Republican philosophy of politics—particularly of the so-called "Old Guard" variety, but I assure you that the substantial majority of this country's practicing physicians who have joined together in a sincere effort to keep Social Security medicine—or socialized medicine, if you will—from being imposed upon their patients and themselves, have not done so because of party affiliation. While it is true that most of them believe this matter is, and always has been, largely political in character—the exchange of grandiose promises for votes—they recognize that the substantial support their position on this issue continues to receive in both houses of Congress does not come from legislators identified with any single political persuasion. Not only do courageous men on both sides of the aisle share our views on the potential dangers of these proposals but, as well, they are urging us to increase our efforts to keep American medicine out of the hands of government.

What Others Think

Thus, we have Senator Wallace F. Bennett, a Republican from Utah, informing us that he is "opposed to any system of compulsory medical care, directed first at our aged but, once instituted, sure to be expanded by political pressure to include all of our population."

"The battle over this legislation is bound to be hectic", he tells us, but ". . . it is a battle no one of us can afford to lose." And thus, also, do we have his outstanding Democratic colleague, Senator Robert S. Kerr of Oklahoma, warning us even more forcefully: "I want to tell you that the fight (against the King-Anderson Bill) goes on. . . ."

"And remember this", he cautions us, "when you have forgotten everything else I have said—if the Congress of the United States just one time passes a bill that links health or medical care with the Social Security system, the battle against socialized medicine will be lost for your lifetime." So much for the background and politics of Social Security medicine.

Regulation Of People

As to the general nature of these plans I have mentioned, we should understand that, beside being compulsory, they call for regulation and control by the collecting and disbursing agency—the Federal government. And when I speak of regulation and control, I am not thinking primarily of just dollars or units of health service. I am thinking, instead, of people—the patient, his family, the nurse, the hospital administrator, the pharmacist and, of course, the physician. Everyone concerned with the care of the sick must, of necessity, be bound by burdensome statutes and ordinances, for it has often been observed by competent economists that when government decides to fix wages and prices and production levels and so forth, it is not these inanimate things which are placed under controls—it is people. Now, to set up a truly socialist plan, I suppose the government must actually own the means of production and distribution of the medical care it promises to hand out and, for the present at least, the advocates of Social Security medicine do not insist on government ownership. But, be that as it may, there is no doubt that the power to regulate the system—and, therefore, to regulate the people—must be retained by the agency which is to pay the bills.

Now, as positive evidence that we are not emphasizing this control factor merely for effect, or to protect our pocketbooks, or to create false alarm, let me quote to you briefly from the King-Anderson Bill itself. It starts out in a reassuring enough manner with the broad disclaimer that: "Nothing in this title shall be construed to authorize any Federal officer or employee to exercise any supervision or control over the practice of medicine, or the manner in which medical services are provided . . .", but in the same paragraph—indeed, in the same sentence—these ominous modifying words are added: "except as otherwise specifically provided. . ." Let us examine a few of these "otherwise" specific provisions. First, we find that: "Any individual entitled to have payment made . . . may obtain hospital services . . . (only) . . . from a provider of services which has signed an agreement with the government." Next, we note that "the amount paid to any provider of (these services) . . . shall be the reasonable cost of such services, as determined in accordance with regulations. . ." And by no means finally, but mixing a bit of red tape with the rules, look for signs of freedom of choice in the following: ". . . payment for services furnished an individual may be made . . . only if written request, signed by such individual except in cases in which the Secretary finds it impractical for the individual to do so, if filed for such payment, in such form, within such time, in such manner, and by such person or persons as the Secretary may, by regulation, prescribe. . ."

Voluntary Or Coercive Plans

Gentlemen, I ask you to read through your Blue Cross contract, your Blue Shield contract or your commercial health policy when you get home and see whether you find in them any such language as this. I can promise you that you will not, because genuine voluntary insurance and prepayment plans are the products of free enterprise; because the authority and responsibility to conduct the affairs of these agencies rest in the hands of no one individual—no far-away, transient political appointee—but with stable, representative bodies of competent local citizens who have no interest in votes, who live in the area of the plans' operation and are responsive to the needs of the people in that area. The voluntary approach to health insurance protection encourages competition which, in turn, fosters flexibility, experimentation and progress. The compulsory way, being monolithic, leads only to mediocrity, inelasticity, inefficiency and maintenance of bureaucratic status quo. It is our opinion that Americans generally like to be offered a choice between two or more alternatives, but government planners characteristically offer no choice whatever. We urge you to keep this difference in mind when you next sit down to write your senator or representative to let him know whether or not you are agreeable to having—like just a slight touch of pregnancy—just a slight touch of socialized medicine.

What Is The Need?

Now, is a Federal program of this kind necessary, and on what basis shall its necessity be determined? If, somewhat absurdly, we ask ourselves whether the people of Connecticut should have medical care, of course the answer is "yes", and it is the sincere belief of most health professionals that medical care is right now available to every resident of the state who seeks it, entirely independent of whether it can be paid for or not by the recipient, and Social Security medicine would not bring so much as an aspirin's worth of health services, per se, to our people. We feel encouraged to note the administration is now subtly changing its popular term for the King-Anderson Bill from the more appealing but quite misleading "medical care for the aged" to the less enticing but more truthful designation of "medical assistance to the aged". Perhaps our efforts to set the matter straight have not been altogether in vain.

But what about paying for this medical care we have? Is it necessary to finance all or part of the health services people may require by levying additional taxes on the nation's working force and their employers? For the public-at-large, certainly, we think the answer is clearly "no", because over 135,000,000 Americans are already taking advantage of the ever-broader protection offered them under a wide variety of voluntary health insurance and prepayment plans. Make no mistake about it, these plans cost money and you get only what you pay for, but responsible people living in a free enterprise climate and wanting not to become servants of the government, must budget for health care just as for all other goods and services.

Resources For The Aged

Well and good, you may say, but what about the aged? Isn't it true that their medical needs are likely to increase, their income decline and their insurability under voluntary plans become rather doubtful? Let's answer these questions in order. Yes, their medical needs are often greater than those of younger people, yet the majority of them are in good health most of the time and, short of a terminal illness, only relatively few—certainly less than 25 per cent—require continuous or long-term hospital and nursing home care which, in large measure, is all that is provided for under the King-Anderson proposal.

Next, as to reduced cash income, the answer is again "yes", but numerous reliable surveys indicate clearly that in respect to assets versus liabilities, the aged as a group are frequently better off than many of their juniors—even without taking into account such assistance as their children might normally be expected to furnish if needed.

And, finally, what about their insurability against health care costs? Are they, as the King-Anderson Bill so bluntly states: "Unable to afford or qualify for voluntary health insurance protection?" Here the answer is "no", very definitely. In Connecticut today, for example, nearly 140,000 persons age 65 or older—about 65 per cent of our entire "senior citizen" population—are enrolled under Blue Cross alone, and it is significant, we think, that a substantial majority of them have chosen to carry the broadest, and naturally most expensive, benefit program. There are also approximately 116,000 over-65 subscribing members of Connecticut Blue Shield, and it is reliably estimated that another 50,000 or more have hospital and doctor-bill protection under commercial insurance policies. Even broad major medical coverage for over-65's—a venture pioneered by insurance companies in this state — has already been purchased by some 22,000 residents in a period of availability which can still be measured in weeks. And remember, please, that there is no compulsion about this and no anonymous young taxpayers must pay the premiums.

In brief, what I am saying is that if we have even one aged person who is totally without means, he is receiving and shall continue to receive needed medical care, financed principally by the Old Age Assistance program; if we have even one person who is self-supporting except for some or all of his medical costs, he is receiving care now and, after April 15th, shall receive financial assistance under our Kerr-Mills program; and in both instances, where the need for help exists, financial assistance will be for complete medical care, not just a small part as the King-Anderson Bill would provide. Neither with these less privileged groups, nor with the vast majority of our aged who can and are choosing to insure themselves, do we find conclusive evidence of a true need for Social Security medicine.

Help Where Needed

In our search for progress in the area of health, we should not direct our energies to meeting the requirements of the few to the detriment of the many, for if this is done we will unquestionably find ourselves in the unenviable position of our British cousins who, according to D. S. Lees (a noted English economist), are finding out that they are "saddled with a program which, being free for all, gives much help where it is not needed (and) less help where it is needed; which, by arbitrary price and other controls, threatens the supply of drugs and encourages the production of inferior medications; which, by its centralization, its uniformity and its destruction of the free market, tends to destroy forces for making improvements"; which, in fact, (the economist concludes) completely defeats the purpose of giving help "where needed, and in generous amounts, if that is seen as the real problem."

Propaganda Campaign

To most who have given careful study to this matter—including a consistently large majority in the House Ways and Means Committee—it is clear that facts and reasoned arguments do not support a Social Security approach to medical care financing, either as to need, desirability or sound fiscal policy.

On this account, some of those who are pledged to putting over this radical, unnecessary and irreversible scheme have launched a concerted propaganda campaign which, in essence, urges you to "hate your doctor", "mistrust your pharmacist", "suspect your health insurance counsellor" and so forth, apparently on the theory that if you can't successfully refute your opponent's testimony, see if you can't seriously damage his reputation. Now few of us are perfect, but it is my sincere conviction that most physicians decided to study medicine because they were genuinely interested in people, in their health and in their welfare. If this were not so, few would have elected to embark upon the lengthy coursees of training which are required, or have voluntarily submitted to a succession of financially unproductive postgraduate years, or have learned to live with the frustrations which beset the medical man in terms of restricted personal and family life. Yet, today, our opinions on health matters are being scoffed at and perverted in a most derogatory manner, simply because we have dared to disagree.

Thus, if the press of a nation which leads the world in health services, we find "liberal" columnist Drew Pearson headlining a gross misrepresentation that the American Medical Association is "drawing a battle line to keep medical care *from* the aged"; columnist Robert Ruark opining that: "Doctors are human beings and, while some are saints and some are sinners, the majority of them are *just no good*"; and union president James B. Carey testifying in Washington that the AMA is trying "to jeopardize the health of millions of older Americans." Even Secretary Ribicoff and others in the administration are not above leveling punches at the medical profession which, by anyone's rules, do not land in fair territory.

Gentlemen, I am not asking you to look upon every physician as a faultless model of virtue, but, in all fairness, I would ask you to consider if these vicious, sweeping attacks are justified and, going a step further, whether they add one whit to your better understanding of the medical care picture among the aged or actually offer you a single valid reason for petitioning the government for Social Security medicine. Think hard on these questions, and do not be hasty in arriving at your ultimate decision, because if—God forbid!—any of us can be persuaded to accept slander as a satisfactory substitute for reasonable argument, then, indeed, all of us are lost as free Americans and for all time.

And lest some of you may wonder if we, in medicine, are not perhaps becoming a bit paranoid about this medical care thing, let me bring to your attention the strictly non-medical opinion of a legislator who has for many years studied it in depth. Rep. Thomas B. Curtis of Missouri recently observed: "When the executive, in order to get through his programs, seeks to undermine the confidence of the people in representative government by appealing to them through propaganda rather than through testimony presented at Congressional hearings, the people should take immediate alarm." Gentlemen, we *are* alarmed, and are doing what we can to keep the record straight. We sincerely hope that others—like yourselves—may be moved to go and do likewise.

The Opinion Survey Report

Beginning with this issue of* Connecticut Medicine, *a series of abstracts based on the Opinion Survey Report will be published for the information of all members of the Society and others who read the Journal. The abstracts have been prepared by the members of the Council's Subcommittee on Opinion Survey (and the General Manager) with the intent of transposing the somewhat formidable array of numerical statistics and interview records contained in the 158-page Report into briefer interesting and readable presentations of the results and conclusions.

As many will recall, the Opinion Survey was authorized by the House of Delegates at the Annual Meeting of 1959. The purpose of the undertaking was to ascertain from Connecticut physicians, themselves, their personal views on a number of related matters which pertain to medical prepayment plans, private health insurance programs and other third party payment agencies.

A great deal of thought and plain hard work went into the preparation of a suitable questionnaire—one which would stimulate widespread interest and elicit reasoned responses, without in any way suggesting what the answers should be or attempting to direct the thinking of the respondents. In this effort, the Subcommittee was helped immeasurably by Mr. Roscoe C. Edlund of the firm of Rogers, Slade and Hill, New York City, who acted as professional consultant to the Society in this project, conducted personal interviews with members, and supervised the analysis of the replies.

After many months of preparation, and following the publication of a long series of pertinent educational articles in the Journal, the official Opinion Survey Questionnaires were mailed out to all members of the Society on September 6, 1960. During the next five or six weeks, frequent efforts were made to get doctors to complete and return their personal copies but it is a somewhat disappointing fact that of the roughly 3300 questionnaires sent out, only 1,558 (49 per cent) were mailed back to Rogers, Slade and Hill for statistical evaluation. Fortunately for everyone concerned, this percentage of participation is sufficient to validate the results and conclusions of the survey.

Despite the facts that on a number of key questions, no clear-cut evidence of a strong majority opinion was demonstrated and that, in some instances, respondents expressed varying degrees of doubt as to the meaning of a question, the Subcommittee feels the Opinion Survey undertaking was very much worthwhile. In addition to determining quite a few very positive and negative attitudes which are held by 1,558 Connecticut physicians, the over-all conclusions of the Report should prove helpful to officers and committees, both at state and county level, in discharging their duties as spokesmen for and representatives of their medical colleagues. Then too, the findings disclose several obvious deficiencies among our members with respect to a complete understanding of certain medico-economic matters, and these appear to point up a need for the Society to provide them with more complete information on this comparatively new but vitally important aspect of modern medical care. The entire story behind the failure of 51 per cent of the membership to take part in this project will perhaps never be known but it might well be conjectured that lack of knowledge of the subject matter served as a greater deterrent to participation than lack of interest.

In any event, the Opinion Survey Report abstracts which begin in this issue of *Connecticut Medicine* and will continue in subsequent issues will serve to make known some of the opinions expressed by roughly half the doctors who are members of the Connecticut State Medical Society. Perhaps some day it will be possible to find out "how the other half lives"!

Members of the Society who wish to have access to the complete Report can borrow a copy at the State Society's office in New Haven. A reading of the Report is well worth while.

OPINION SURVEY ABSTRACTS

Fields 5 through 13

Prepared by

Benjamin Katzin, Torrington

STATISTICS ABOUT RESPONDENTS

Fields 5 through 13 of the Opinion Survey Questionnaire dealt with statistics about the respondents, covering such matters as age, sex, type and location of practice, years in practice and status as a Participating Physician with Connecticut Medical Service, Inc.

In the interpretation and significance of the study some information about the 1,558 participants is important. Essentially all (97 per cent) were men and the great majority (83 per cent) were in private practice. Of the private practitioners, two thirds had been in practice up to 20 years. The greatest single group were general practitioners, (23 per cent), internists followed with 16 per cent and general surgeons 11 per cent. The remaining half was composed of all the other specialties. As might be expected, the three largest counties accounted for three fourths of the respondents with about equal numbers from each. Almost half the replies (47 per cent) came from cities of 100,000 or more.

Participation in CMS varied somewhat depending on certain specialties. Some 21 per cent of private practitioners are not participants. Half or more of certain specialties are not participating physicians. These include Dermatology, Psychiatry, Neurology, Ophthalmology, EENT and Anesthesiology.

Obviously many opinions were expressed about CMS. There was much enthusiasm but also many criticisms were expressed indicating many problems. In general it was felt that CMS is a necessity in practice. The chief concerns expressed seem to revolve about certain basic problems; (1) Influence on the doctor's freedom to determine his own income; (2) Dissatisfaction about many procedures not covered or inadequately covered by CMS; (3) Inequities in payment, particularly as regards medical versus surgical fee schedules.

OPINION SURVEY ABSTRACTS

Fields 14 through 45

Prepared by

Phillip M. Cornwell, Hartford

Fields 14-42

Connecticut's Medical Profession In Relation To Current Problems Of Medical Economics

SURVEY QUESTIONS:

1. **In your opinion, are the representatives of the medical profession in our state competent to try to negotiate equitable and workable plans which will enable the public to prepay or insure against the costs of the services of doctors of medicine through:**
   Connecticut Medical Service, Inc.?
   Insurance Companies?
   Medicare?
   Veterans Medical Care?
   State Welfare Department?
   Workmen's Compensation?
   Company Welfare Plans?
   Labor Union Welfare Plans?
   Others?
   No Opinion?
2. **In this (the foregoing) connection, do you feel that through its elected and appointed representatives in the Connecticut State Medical Society, the medical profession in this state already has sufficient direct voice in the determination of the medico-economic policies of the various agencies listed (above under Question No. 1), or should we seek to have a stronger direct voice than we have at present?**

A good majority (from 60 per cent to 86 per cent) indicated that representatives of the medical profession in Connecticut are competent "to try to negotiate equitable and workable plans which will enable the public to insure or prepay against the costs of the services of doctors" through the medium of the various third party agencies listed. This opinion was held most strongly with respect to CMS, Inc. (86 per cent), very firmly with respect to insurance companies (71 per cent) and with less conviction (44 per cent to 62 per cent) with respect to the others. It is interesting to note, however, that in personal interviews many respondents expressed the belief that there is a great need for assistance of the profession in its "negotiating" from actuaries, insurance underwriters, lawyers, public relations experts, etc. This attitude, often repeated, suggests that there is no unanimous confidence in the *unassisted* competence of doctors in these matters.

As to question No. 2, a majority of replies indicate the medical profession should seek to have a stronger voice in the determination of the medico-economic policies of third party agencies. A possible exception to this general attitude was evidenced in the case of CMS, Inc., where opinion was about equally divided between that we "already have sufficient voice (45 per cent)" and that we "should seek a stronger voice (47 per cent)." Among other agencies, the "we should aim for a stronger voice" opinion prevailed as follows: Insurance companies (63 per cent), Medicare (53 per cent), Veterans Medical Care (56 per cent), State Welfare Department (64 per cent)), Workmen's Compensation (47 per cent), and Company and Union Welfare Plans (52-57 per cent).

SURVEY QUESTIONS:

3. **Do you desire that the Connecticut State Medical Society, through its elected and appointed representatives, take the lead in advising with and participating in the determination of the medico-economic policies of the third party agencies previously listed (under Question No. 1)?**
4. **If the Connecticut State Medical Society, in attempting to deal with these problems, were to consult and cooperate with other interested agencies such as government, management, labor unions, insurance companies, etc., would you prefer that the Society:**
   - **A. Initiate such consultation?**
   - **B. Be receptive to consultation and cooperation on request?**
   - **C. No opinion?**

A very substantial majority of respondents (70 per cent up to 92 per cent in the various categories) believe the Society should "take the lead in advising with and participating in the determination of the medico-economic policies" of the third party payment agencies listed, and a goodly number (70 per cent) favored the Society's actively initiating consultation and cooperation with other interested agencies. Almost all of the remaining 30 per cent believe the Society should be "receptive" to establishing a working liaison with these agencies, even if it did not initiate such liaison.

SURVEY QUESTION:

5. **With specific reference to influencing the medical and economic policies of Connecticut Medical Service, Inc. by doctors of medicine, please express your preference as to the method of exerting this influence among the following:**
   - **A. Collective representation through the Connecticut State Medical Society?**
   - **B. Representation only through the CMS Board of Directors and the CMS Medical Advisory Committee?**
   - **C. Representation through a combination of the above, such as a CSMS-CMS Joint Liaison Committee?**
   - **D. Direct negotiation with CMS by individual or organized CMS participating physicians only?**
   - **E. Representation through other channel or channels, specify?**
   - **F. Other?**

In answer to this specific question, a large majority of respondents (74 per cent) favored exerting their influence on the medico-economic policies of Connecticut Medical Service, Inc. through the Connecticut State Medical Society, either exclusively (54 per cent) or in cooperation with liaison representatives of the CMS Board of Directors (20 per cent). About 14 per cent felt their influence could be exerted satisfactorily through the Society's members serving as CMS Directors alone, and only 6 per cent preferred to negotiate CMS policy as individual or organized CMS Participating Physicians.

Fields 43 through 45

The Board of Directors of CMS, Inc.

SURVEY QUESTION:

Would you prefer that the CMS Board of Directors be composed of:

1. **50 per cent MD's and 50 per cent laymen, as at present?**
2. **A majority of MD's?**
3. **A majority of laymen?**
4. **100 per cent MD's?**
5. **100 per cent laymen?**
6. **Other?**
7. **No opinion?**

Of those responding to this question, a majority—but not a large majority (56 per cent)—favored the present 50-50 division between physician and laymen on the CMS Board of Directors, while a substantial minority (36 per cent) would prefer a majority of physicians on the Board. In the personal interviews, a very interesting suggestion was made that the CMS Directors be made up of 50 per cent M.D.'s and 50 per cent laymen, and that the Board itself then appoint one additional outstanding citizen (unspecified) to act as Chairman. In the other categories listed, only 3 per cent favored a Board made up exclusively of physicians, only 2 per cent favored a majority of laymen, and only one-tenth of 1 per cent would prefer a Board made up exclusively of laymen.

SURVEY QUESTION:

Of the non-M.D. members of the CMS Board of Directors, do you believe that there should be representation as follows (Check more than one, if desired):

1. **Public spirited laymen, unspecified?**
2. **CMS policy holders?**
3. **CMS policy holders only?**
4. **Blocs (labor management, agriculture, government)?**
5. **Oral surgeons (dentists)?**
6. **Osteopathic physicians?**
7. **Chiropodists?**
8. **Other?**
9. **No opinion?**

In the replies to this question, the thought was expressed repeatedly in personal interviews that the physician members of the CMS Board should represent as many different types of medical practice as possible. Of those responding, a vast majority (83 per cent) expressed a desire that the laymen serving on the CMS Board should be both "public-spirited and unspecified". A minority of 22 per cent, however, were agreeable to blocs (special interest groups) having representation on the Board and about 35 per cent felt that CMS policy-holders should also be represented. Among those interviewed, many expressed the belief that the lay members of the Board should be rotated more often than has been the case in the past. In the non-M.D. professional groups listed, 15 per cent favored representation on the Board as to Dentists, 3 per cent as to osteopaths and 2 per cent to chiropodists.

SURVEY QUESTION:

Throughout the country, the members of medical society-sponsored Blue Shield Plans' Boards of Directors are elected in several different ways. In Connecticut, with respect to Connecticut Medical Service, Inc. (Connecticut's Blue Shield Plan), which of the following methods of electing directors would you prefer:

1. **CMS Corporators elect all members of the CMS Board of Directors, as at present under the By-laws of CMS?**
2. **The House of Delegates of the Connecticut State Medical Society elect all members of the CMS Board?**
3. **The House of Delegates of the Connecticut State Medical Society elect the M.D. members of the board?**
4. **Some other body, such as CMS policy holders, the state legislature, management and labor groups, etc. elect or appoint all members of the board?**
5. **No opinion?**

Of those responding a sizeable minority of 23 per cent favor the election of *all* CMS Directors by the CMS Corporators, as at present. This method carries the corollary that the physician members elected are nominated by the Council of the Connecticut State Medical Society but formally elected by the Corporators. A majority (53 per cent) would prefer that the *M.D. members* of the CMS Board be elected by the House of Delegates of the Connecticut State Medical Society, leaving the CMS Corporators to elect the lay members. About 15 per cent of those replying would prefer that the CSMS House of Delegates elect all the CMS Directors. In the personal interviews, considerable emphasis was laid on the undesirability of "perpetuation in office" of members of the CMS Board. It is apparently felt (as also expressed in replies to the previous question) that rotation of Board members at reasonable intervals would be beneficial to the plan and all concerned with its operation.

SUMMARY

(Fields 14 through 45)

In concluding this portion of the report on the Opinion Survey, it should be said that the foregoing is really a summary of a summary of the mass of material collected and tabulated. The answer to questions and the attitudes expressed in personal interviews are interesting and most revealing. The entire picture can best be appreciated only by careful study of all of the material. It is evident in some areas that many more problems have been brought to light by this study than have been solved. In the personal interviews, the preponderance of opinion was that, although the Connecticut State Medical Society was doing better than it had in the past in dealing with problems of medical economics, it was still far less effective than it might be. Many hold the opinion that in this field doctors are not sufficiently informed, have not sufficient time to give, and are apt to be highly unsophisticated. The need for the employment of expert assistance was repeatedly mentioned.

(*This is the first of a series of three articles*).

PLACEMENT SERVICE

The Society's Placement Service is in receipt of the following:

WANTED Locum Tenens in Internal Medicine or General Practice during the period of June 1st to September 20, 1962.

PLACEMENT OPPORTUNITY

WANTED General Practitioner in Hartford area, for three to four months to take over physician's practice who is ill.

FOR SALE Practice for General Practitioner or Internist in Fairfield County. Physician entering residency training on or about July 1962.

WANTED Physician in student health work. Full-time appointment. Both in clinic and in-patient service. Salary range $10,000–$11,000.

ANY ONE INTERESTED IN THE ABOVE, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

WANTED Medical Education Director for 189-bed hospital. Other professional activity within the hospital may be essential. Salary open. Reply to Chairman, Medical Education Committee, Mt. Sinai Hospital, 500 Blue Hills Ave., Hartford 12, Conn.

Doctor's Office

Waldo F. Desmond, M.D., announces that he is opening his office for the full time practice of medicine at 24 Main Street, Newtown.

Donald McCaughan, M.D., announces the opening of an office for the general practice of medicine and disease of the heart and circulation at Talcottville Road, Vernon.

Charles Stabinsky, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 152 East Avenue, Norwalk.

Harold Steinberg, M.D., announces the opening of an office in association with Paul Beres, M.D., for the practice of internal medicine at 143 Main Street, Westport. Dr. Steinberg was formerly located at 380 West Avenue.

Mark Your Calendar

Connecticut State Medical Society
170th Annual Meeting
May 2, 3, 4, 1962
Statler Hilton Hotel, Hartford

Annual Meeting Of The House Of Delegates
Wednesday May 2, 1962
10:00 A. M.
Statler Hilton Hotel, Hartford

Plan Now To Save The Dates

BRADYKININ: *A Vasodepressor Polypeptide*

LOUIS H. NAHUM, M.D.
New Haven

OVER eighteen pharmacologically active polypeptides have already been identified and the end is not in sight. Some stimulate plain muscle like oxytocin. Some like renin, angiotensin I and II Hysterotonin are powerful vasoconstrictors and at the same time stimulate aldosterone secretion. Some are vasodepressor and vasodilator, seem to be involved in the control of the vascular system under physiologic as well as pathologic conditions. An excellent review of this subject limited to the depressor polypeptides has brought into clear perspective, our present knowledge of the vasodepressor polypeptide bradyginin.[1]

This substance was named by Rocha e Silva and Associates[2] in 1949 who found that immediately after injecting a snake venom into a dog, its blood caused stimulation of a guinea pig ileum. They reasoned that the venom released a smooth muscle stimulant from the blood which caused the gut contraction. In addition to its stimulating effect on smooth muscle it also produced a vasodilatation which led to a depressor response.

The circulatory action appears to be peripheral since it produces a vasodilatation when given intra-arterially into the ear of rabbits or into the region of the submandibular salivary gland of the cat.[3] When given intravenously into the rat, a few units will produce a pronounced fall in blood pressure that persists for a long time. It would seem that once bradykinin is bound to the tissue receptors it becomes resistant to inactivating enzymes. The elimination of the adrenals seems to sensitize the animals to the vasodepressor effect of the polypeptide. Similarly do sympatholytic drugs like chlorpromazine and reserpine. Since these drugs also act on the central nervous system, the results suggest that bradykinin also has a central effect. This, however, is not easy to establish since a drug like reserpine also depletes the stores of peripheral norepinephrine. There is no evidence that the polypeptide works through any cardiac mechanism.

The smooth muscle effects are evidenced by powerful stimulation of the smooth muscle of the ileum intestine, uterus and stomach of a variety of species. It has no effect on the smooth muscle of carotid arterial strips spirally cut. These effects are not influenced by atropine, antihistamines or paralyzing concentrations of nicotine. Bradykinin can be easily distinguished from other polypeptides like oxytocin, vasopressin, angiotensin, pepsitensin and certain others by methods known to pharmacologists such as parallel assays, enzymatic destruction and inactivation by thioglycollate.

The physiologic significance of substances similar to bradykinin is considerable. Everywhere in the body, in skeletal muscle, in glandular systems, when they become active their blood vessels dilate and the rate of bood flow through them increases. This has been called "Reactive hyperemia" and is utilized therapeutically in peripheral vascular disease and coronary artery disease to increase blood flow and promote collateral circulation through the use of graded forms of exercise. It is quite clear that this is a very useful vascular reaction, often more

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DR. LOUIS H. NAHUM, Lecturer in Physiology, Yale University School of Medicine, New Haven. Consultant in Medicine, Hospital of St. Raphael, New Haven. Grace-New Haven Community Hospital, New Haven. Griffin Hospital, Derby. Middlesex Hospital, Middletown. Cardiologist at Milford Hospital, Milford.

useful than vasodilator drugs. The mechanisms responsible for this vasodilatation have remained uncertain until the pharmacology of bradykinin and similar polypeptides has become clear. Hilton & Lewis[3] detected a stable vasodilator material in the perfusate from the submandibular salivary gland of the cat, during stimulation of the chorda tympani or by injections of acetylcholine which also stimulate the salivary gland to secrete. The substance had all the actions of a bradykinin since its action on smooth muscle or its dilator effect in the gland only occurred when it was incubated with plasma. They concluded that activation of the cells of the gland, liberates into the interstitial fluid an intracellular enzyme which acts upon the proteins present to form a vasodilator polypeptide which in all respects is similar to bradykinin. This substance generally is prevented from reaching the blood by virtue of its limited permiability and so it produces its effect locally. The hyperemia therefore is regarded as functional—vasodilatation secondary to the activity of glandular tissue. These observations gave rise to the theory that what occurs in the salivary gland also occurs in other organs or tissues following activation or injury and that this is the basic mechanism by means of which local flow of blood is adjusted to local needs.

The theory has now gained support from controlled heat experiments on human subjects in which vasodilatation always precedes sweating. Similar support comes from experiments on the tongue of dogs and cats showing that there is a release of a bradykinin forming enzyme after nervous stimulation. Also the report by Werle[4] that a bradykinin forming enzyme is secreted by the pancreas, which may be the basis for the hyperemia of the gland during secretion. Probably after noxious stimuli a bradykinin-like permeability, lowers pain threshold, induces vasodilatation, edema and other reactions relevant to the inflammatory response.[5A&B]

The widespread generation of bradykinin-like polypeptides occurs not only in normal physiologic mechanisms but also under pathologic conditions as well. During active disease of the nervous system, vascular headache of the migraine type, sustained nervous stimulation and pain arising from the legs or pelvic organs, a bradykinin-like substance has been demonstrated as implicated in local vasomotor control within the central nervous system and when in excess, the components may play a role in disease. The pain of vascular headache of the migraine type may be the result of dilatation of large arteries and the action of pain threshold lowering substances accumulating in the walls of blood vessels and in perivascular tissues may be caused by bradykinin. A hypotensive substance which stimulates smooth muscle and resembles bradykinin has also been found in anaphylactic and peptone shock in dogs.[1]

It is clear enough that active substances of the bradykinin type may be involved in functional vasodilatation in secretory organs and skin and in increasing the flow of blood in skeletal muscle. Furthermore, these polypeptides may be involved in local inflammatory responses to noxious stimuli. Finally, the depressor polypeptide-forming mechanism may be involved in a variety of pathologic states, such as active disease of the nervous system, vascular headache of the migraine type anaphylactic and peptone shock and other traumatic episodes.

REFERENCES

1. Huggins, C. G. and Walaszek, E. J.:: Depressor polypeptides. American Heart Journal, 60: 976, 1960.

2. Beraldo, G., Rocha e Silva, Rosenfeld, W. T., Bradykinin, a hypotensive and smooth muscle stimulating factor from plasma globulin by snake venoms and by trypsins. American Journal Physiology, 156: 261, 1949.

3. Hilton, S. M. and Lewis, G. P.: Functional vasodilatation in the submandibular salivary gland. Brit. M. Bull., 13: 189, 1957.

4. Werle, E.: In polypeptides which stimulate plain muscle. Ed by J. H. Gaddum, Edinburgh and London 1955. E & S Livingston Ltd.

5A. Chapman, L. F., Goodall, H., and Wolff, H. G.: Augmentation of the inflammatory reaction by activity of the central nervous system. A.M.A. Archives Neurology, 1: 557, 1959.

5B. Studies of proteolytic enzymes in cerebrospinal fluid. A.M.A. Archives Internal Medicine, 103: 86, 1959.

Committee On Maternal Mortality And Morbidity

This 34-year-old gravida 3, para 2, Rh negative, serology negative, white female was admitted to the hospital with a diagnosis of missed abortion.

Prenatal Course: The patient was seen for her first prenatal visit on August 11th. Her last menstrual period was May 5th. She was thought to be three months pregnant by examination. It was noted by the physician that the uterus failed to enlarge normally after this visit. On October 6, six days prior to admission, a pregnancy test was reported to be negative. This was the first time the diagnosis of missed abortion was considered as established. The initial hemoglobin was 12 grams.

Previous Pregnancies: Two previous pregnancies terminated in full-term spontaneous deliveries without any complications.

Past History: Appendectomy and right oophorectomy were done at the age of 24.

Hospital Course: It was elected to admit the patient to the hospital for dilatation and curettage. Her last menstrual period had occurred 21 weeks prior.

Blood pressure was 110/70; temperature 98.6°F; pulse 80; respirations 20. The uterus was palpable, one fingerbreath, 2cm. above the symphysis, was firm, regular in outline, mobile, non-tender and was considered to be enlarged, to the size of a 3½-months pregnancy. The breasts were not suggestive of pregnancy; the extremities were normal, and the remainder of the physical examination was normal.

The day following examination, under pentothal anesthesia, a dilatation and curettage was done, and a macerated fetus, placenta and membranes were removed. Bleeding, apparently, was minimal, but a small tear was located in the region of the internal os. It was considered that this was done during the dilatation. This rent was said to have been sutured. Following this, the uterus, cervix and the vagina were packed. The patient was then sent to the recovery room, where she remained for 1½ hours. At this time with a blood pressure of 100/70 and pulse 100 and with slight vaginal bleeding, the patient was considered to be in good condition and, despite the fact that she was pale, she was returned to her room. Five minutes after she reached her room, no blood pressure was obtainable. The uterus was firm and not increased in size. The patient was immediately given ergotrate intravenously and intramuscularly. Her general condition seemed to improve, with the blood pressure being 90/60. It was a matter of an hour and 40 minutes before 1,000 cc. of 5 per cent glucose in distilled water was started. It was almost three hours before whole blood was started. This was 500 cc. and was followed by one bottle of Expandex. Following this therapy the blood pressure was 86/64, and an additional 500 cc. of blood and 1,000 cc. of 5 per cent glucose in distilled water were administered. The blood pressure gradually rose, and by 6-7 hours after the operation it was reported as 105/70. A fibrinogen-index level was done and was reported to be subnormal. The patient was given four gm. of fibrinogen intermittently over a period of 2½ hours. A third pint of blood was also given during this interval. Approximately 11 hours after the blood pressure had been reported as obtainable, it had returned to 100/80. One hour later it dropped to levels of 60-72/40. The pulse was thin and thready, and it was felt that the patient must be bleeding from the cervical or uterine tear. The patient was taken to the operating room for the second time. At the beginning of this procedure the blood pressure was 100/70, but 35 minutes later the blood pressure had dropped to 80/60. At operation, upon opening the deep fascia, there seemed to be an extravasation of blood in the tissues in the space of Retzius and behind the bladder. There were a few areas of the uterus with small extravasations of blood. The left tube was completely dark with extravasated blood; this finding was present also in the area of the right tube. There was a large area of left lateral pelvic wall extravasation. No evidence of lack of clotting was noted during this procedure. A hysterectomy was done. As the operator was inserting the last suture of the closure, the anesthetist informed him that the patient's pulse was unobtainable. The chest was opened, and cardiac massage was instituted. Cardiac contractions could not be restored. The patient was pronounced dead.

Autopsy: Approximately 500 cc. of dark red fluid was obtained from the peritoneal cavity. Retroperitoneal hemorrhage discolored the peritoneal surface throughout the pelvis and in the mesentery. Upon dissection of the retroperitoneal space it was noted that there was a large amount of retroperitoneal clotted blood, but no source of the bleeding could be found. However, examination of the surgically removed uterus demonstrated a rent one inch long at 9 o'clock at the level of the internal os, which had only been sutured at the distal one-half of the laceration. It was estimated that the retroperitoneal hemorrhage was in the range of two liters or over. It extended throughout the pelvis, around the perirenal fat, as high as the diaphragm on the right, and up over the aorta in the midline and into the root of the mesentery.

Final Diagnosis: Retroperitoneal hemorrhage, post dilatation and curettage for missed abortion. Prior to operation the uterus was said to have been 3½ months size.

Comments: a) Dilatation and curettage, in a uterus the size of a 3½ months pregnancy is a hazardous procedure. While most curet perforations occur in the body of the uterus, large cervical lacerations, particularly of the internal os, are relatively common.

b) There is considerable controversy in the literature concerning the handling of the missed abortion problem. However, if five weeks or more have elapsed between fetal demise and establishment of the diagnosis, the consensus seems to be that the most conservative management dictates no active interference until spontaneous labor begins. Obviously, one should be on guard for evidence of afibrinogenemia.

c) The suturing of the internal os at the time of dilatation and curettage is an extremely difficult, if not impossible, thing to do properly. This is due to lack of exposure and not being certain that the apex of the tear is caught in the suture. If this is not accomplished, hemorrhage is almost bound to ensue.

d) Packing of the uterus to stop bleeding from a high cervical laceration is almost never successful and also conceals bleeding.

e) With the blood pressure 100/70, pulse 100 and the patient pale, it was considered that the patient was in good condition and she was removed to her room. It is interesting that five minutes later she was in profound shock with no obtainable blood pressure. The patient had obviously been in shock for some time and the condition was not clinically recognized.

f) Ergotrate is not an indicated drug in the face of hemorrhage with a firm uterus.

g) There was a delay of nearly two hours before intravenous fluids were started and it was nearly three hours before blood was begun. Five hundred cubic centimeters of blood is practically never enough blood when dealing with obstetrical shock.

h) In the administration of fibrinogen, the total dose should be given immediately. Even if this drug was indicated, it should have been given at once. If it is given in intermittent doses, it may not be effective because it tends to be all destroyed as soon as it is administered, unless there is an excess of fibrinogen in the serum. One has to give more than enough for it to be effective. The correct dosage is four gm., but it should be given within a very short time and not over a period of 2½ hours. Fibrinogen levels and clot retraction studies should be repeated at frequent intervals until both are normal.

i) There was obviously inadequate blood replacement throughout and the indicated repeat surgery far too delayed.

j) Cardiac massage, when the etiology of cardiac arrest is hemorrhage, is never of any avail.

Summary: The case of this patient points out the hazards of dilatation and curettage in a uterus more than 10 weeks pregnancy size, inadequate repair of cervical laceration, obstetrical shock recognized too late and treated far too inadequately, fractionation of fibrinogen administration, gross delay in indicated hysterectomy, and the uselessness of cardiac massage when hemorrhage is the cause of cardiac arrest.

Closed-Chest Massage Restarts Heartbeat In 78 Per Cent

Closed-chest cardiac massage was successful in 78 per cent of 138 sudden heart arrests, three Baltimore researchers said recently.

James R. Jude, M.D.; William B. Kouwenhoven, Dr. Ing., and G. Guy Knickerbocker, M.S.E., reported on their experience with the technique during the past two and one-half years at Johns Hopkins Hospital, in the current Journal of the American Medical Association.

The technique consists of applying intermittent pressure on the lower breast bone which compresses the heart.

Using this method, coupled with artificial respiration, the heart beat was restored in 107 of 138 arrests occurring in 118 patients, the authors said. Twenty-eight patients, or 24 per cent, survived the arrest and underlying disease to leave the hospital, they said.

Application of pressure to the proper part of the breast bone usually will prevent most complications of closed-chest massage, the authors said. Fractured or cracked ribs are the "most common complication" of this method, they said. However, this is not a major concern unless so many ribs are broken the resiliency of the rib cage is destroyed, they said.

The authors said that in the same patient external cardiac massage provides blood pressure as high as internal massage, i.e., the direct manual massage of the heart after an incision in the chest.

In comparing the two methods, they said, internal massage could produce damage to the heart more severe than that so far observed in hearts externally massaged.

Although mechanical devices to replace the human hand in external cardiac massage are under development and study, the authors said, their place in heart resuscitation is not yet established.

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AROUND THE STATE

Connecticut's Alcoholism Treatment Facilities

Connecticut's state supported treatment program for the alcoholic is described in a new brochure "Alcoholism is Everybody's Business", published by the Alcoholism Division, Connecticut Department of Mental Health, 51 Coventry Street, Hartford.

Admission procedures, patient eligibility and costs are outlined in the brochure. Various aspects of treatment programs are explained. Through five out-patient clinics, a 50 bed in-patient service and a half-way house. The Alcoholism Division maintains a broad program directed at reduction of the health problem of alcoholism.

Throughout the country the medical profession shows much interest in the results of research which has been conducted at Blue Hills Hospital. Here advances have been made in treatment of the alcoholic through a program geared entirely to his needs, including the use of helping drugs and phychotherapy. Through work at Blue Hills there is an increasing recognitions of the possibility of treating the alcoholic in general hospitals.

For copies of the brochure "Alcoholism is Everybody's Business" or for copies of reports on recent research in treatment of the alcoholic at Blue Hills, contact Mrs. Mary Barber, Educational Director, Alcoholism Division, 51 Coventry Street, Hartford 12.

Letter To The Editor

December 19, 1961.

Dear Sir,

We at the Bridgeport Chapter of the Connecticut Society for Crippled Children and Adults appreciate and are much pleased with the November CONNECTICUT MEDICINE Rehabilitation Number.

I have retired from the private practise of pediatrics and am now engaged in part time work as medical director at our Rehabilitation Center. I have already requested a couple of extra copies of your November Issue to leave at the center.

I wish to express to you our appreciation for this Rehabilitation Number.

Sincerely yours,

C. V. CALVIN, M.D.

New Haven County

Dr. Norton Canfield announces the removal of his office from 158 Whitney Avenue, New Haven to Harwood Hospital, Christiansted, St. Croix, U.S. Virgin Islands, where he will continue to practice otolaryngology after April 1, 1962. Patient records are available from the office of Dr. Howard Smith at 100 York Street, New Haven.

Fairfield County

Dr. Madeline Fiske was elected president of the Stamford Medical Society last month.

Other new officers elected were: Dr. Robinson H. Dorion, first vice-president; Dr. Arthur Koffler, second vice-president; Dr. Clayton Weed, secretary and Dr. Jean Farrell, treasurer.

The following were elected to the executive committee: Drs. Kevin Doyle, Julian Levine, Henry Zalichin, Clayton Weed and Robinson H. Dorion.

Dr. William Troy was appointed to the Stamford Medical Society Foundation.

New London County

Leonard G. Wilson, Assistant Professor of the History of Medicine at Yale University was the guest speaker at the January 4th meeting of the New London County Medical Association which was held in the Norwich Inn, Norwich. His topic was "Beginning of a Distinctive American Contribution to Medicine.

W. B. SAUNDERS COMPANY features the following recent books in their full page advertisement appearing elsewhere in this issue:

FONTANA & EDWARDS—CONGENITAL CARDIAC DISORDERS—a vital statistical study to aid you in a better understanding of malformations of the heart.

WILLIAMS — Textbook of ENDOCRINOLOGY — a definitive source emphasizing the effects of endocrine changes on body metabolism.

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NEW BOOKS IN REVIEW

THE CERVIX UTERI AND ITS DISEASES by C. Frederic Fluhmann, B.A., M.D., C.M., Chief of Obstetrics and Gynecology, Presbyterian Medical Center, San Francisco, California; Clinical Professor of Obstetrics and Gynecology, Stanford University School of Medicine, Palo Alto, California. Philadelphia and London, W. B. Saunders Co., 1961, 556 pp. $14.00.

Reviewed by: STANLEY B. WELD

It is becoming increasingly fashionable to write an entire volume about one organ of the body or even a part of an organ. That the author has found sufficient material to fill over 500 pages, 5″ x 8″, attests to his ability as a student of his subject. The very appearance of the volume is modern with the author's name above on the front cover and the title in larger type below. This same arrangement is carried out on the title page and again with the frontispiece set in the lower half of the page. There is much white space at the beginning of sections and at the head of chapters. Fully one half of the volume is given over to illustrations, for the most part large enough to show the reader what they are intended to show. The only small cuts are the forty-six depicting the operature procedure in invasive carcinoma of the cervix and these are so near in size to the field as seen by the operator that they may be termed true to life. The book is written with the clinician primarily in mind.

In his preface the author points out the increasing importance of the cervix "as a separate organ with a destiny completely different from that of the corpus." He points out the difference between the corpus and the cervix, due to a different embryonic origin, supporting the view that the cervix is of ectodermal origin. Attention is called to the fact that there truly is a basement membrane in the cervix as proven by the electron miscoscope. The author also adheres to the theory of what he terms squamous prosoplasia to account for the genesis of prosoplastic cells, in fact, he is a coiner of several new terms such as tunnel clusters and prosoplasia.

Vaginal smears twice a year are recommended after the age of 35 and once a year before that. In the instance of pregnancy, vaginal smears are recommended on all women above the age of 25 at the time of their first antepartum visit.

Special technic for the roentgenographic examination of the cervix is outlined.

Emphasis is placed on the fact that the majority of squamous cell carcinomas of the cervix originate above the squamocolumnar junction. Interestingly enough, the author believes that not all carcinoma in situ lesions of the cervix continue on to the invasive stage.

There are four long and excellent chapters covering over 100 pages on the treatment of invasive carcinoma of the cervix. Certain principles are laid down: (1) that such treatment should be carried out by a team of radiologist and gynecologist; (2) that methods of treatment must follow a prearranged plan which is flexible; and (3) that the method employed will be influenced by the facilities available. The therapeutic ratio is discussed, including radiosensitivity and radiocurability.

The volume ends with a chapter on the Incompetent Cervix in which the author describes the methods of treatment, and a short chapter on Carcinoma and Pregnancy.

The gynecologist will find this volume a valuable reference in that it contains a discussion of the anatomy, histology and physiology of the cervix and contributes the latest in the diagnosis and treatment of diseases of the cervix. Each chapter has an extensive list of references and the entire volume is well indexed.

SURGERY OF THE ACUTE ABDOMEN by John A. Shepherd, V.R.D., M.D. The Williams & Wilkins Co., Baltimore, exclusive U. S. agents. 1961, 1228 pp., $18.50.

Reviewed by: IRA S. GOLDENBERG

This book is probably one of the most comprehensive yet written on the single important symptom complex of the acute abdomen. It is indeed a rarity in this day of collaborative editorship to find a book of some twelve hundred pages written completely by a single author. The unique aspects can be carried even further, since most of what the author has to say about acute abdominal problems originates from his own extensive experience in diagnosing and treating patients. The method of presentation is excellent, with introductory and background remarks in regard to a specific topic well illustrated with case histories, anatomy, and then a brief and non-technical description of the operative procedure which could be utilized to treat the particular problem at hand. In addition, pertinent roentgenograms are reproduced to emphasize important findings. Generous reference is made to historical material of import to the topic under discussion.

Not only are the common acute abdominal problems covered in great detail, but some unusual and even rare situations are thoroughly evaluated and discussed. Of particular value is the bibliographic arrangement by topics covered within the preceding chapter rather than simply a pot pourri of alphabetically arranged names. This is a textbook aimed principally at the house officer and practicing surgeon, since I do not feel that the average medical student has enough background to appreciate a great deal of the material presented. This is particularly true because the author presumes in his readers a fairly intimate knowledge of surgical problems.

The text has been printed in the Netherlands, and is a good example of modern printing techniques save for the rather thin paper which has been used and which I fear would not stand up under heavy usage.

On the whole, this is an outstanding volume and, I feel, contributes something worthwhile to the young physician to aid him in the management of patients, both pediatric and adult, with acute abdominal problems.

PROGRESS REPORT — CMS

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THE FUNCTIONS OF THE ENDOCRINE GLANDS by Peter F. Hall, M.D., M.R.C.P., M.R.A.C.P., W. B. Saunders Company, Philadelphia and London, 1959, 290 pp., $5.75.

Reviewed by: ALVIN BRODISH

This book is ideally suited for the medical student without prior knowledge of endocrinology or for the practicing physician who would like a review of the subject in order to be brought up to date with regard to more recent concepts of endocrine activity. Dr. Hall writes in a clear, well-organized style which concisely presents to the reader a satisfactory understanding of the function of the endocrine glands. The reader is not overwhelmed with excessive experimental details or clinical findings, but is led in a systematic manner through the various endocrine organs.

Each endocrine gland is discussed briefly under the following headings: embryology, histology, function, chemistry of the hormone, actions and metabolism of the hormones, control of secretion, and clinical diseases of the endocrine organ. An introductory chapter deals with the elementary chemistry of hormones, and a separate chapter in set aside for a discussion of the chemical aspects of steroid metabolism. The author discusses endocrine factors in growth, maturation, and decline and devotes an entire chapter to the recently recognized important interrelationships between the central nervous system and the endocrine glands.

NURSING HOME ADMINISTRATION by John D. Gerletti Ed. D.; C. C. Crawford, Ph.D.; Donovan J. Perkins, M.S. Published by Attending Staff Association, 7601 East Imperial Highway, Downey, California. 472 pages.

Reviewed by: DENIS S. O'CONNOR

Anyone who has any serious thoughts about opening a nursing home or similar institution could do nothing so good as to take a course in nursing home administration by reading this book. After doing so he will either throw up his hands in resignation of such an ambition or he will go forward in his project with overwhelming enthusiasm, and nothing which happens in the future can surprise him because there is no phase of the problem which has not been thoroughly explored.

This isn't the usual book of authoritative opinions or a compiliation of the opinions of others. This represents the problems which the members of the Association reported and for which they sought the help of their confreres. The solutions, or suggested solutions, represent the experiences of the members in their own institutions. There is no dogmatism in these answers, in fact, there are often many answers to any one problem.

While considerable space is paid to the psychological aspect of patient and family relations as it should, personal relations of nurses and others in the home are not neglected. Records, finances, housekeeping and nutrition are also covered.

There is so much valuable help in this book for so many people engaged in the care of the sick and the elderly whether it be hospital, nursing home, rehabilitation center or home for senior citizens that no matter how experienced one may be he could find answers to unsolved problems or better answers to some that he thinks he may have solved.

I would like to see this book available to everyone who in any way has a responsibility for the care of the sick.

POLYPEPTIDES Which Affect Smooth Muscles and Blood Vessels. Edited by M. Schachter, M.D., Pergamon Press, New York, 1959, 336 pp., $8.50.

Reviewed by: LOUIS H. NAHUM

Polypeptides have become of great interest in recent years not only because the wide range of activity of many of them have become known, but also because biochemists have established the chemical structures of a few and are actively engaged in solving the mystery of others. Over eighteen polypeptides of high activity are now known ranging from polypeptides with antibiotic activity to those which affect smooth muscles and blood vessels, to new hormones of polypeptide linkages of the anterior pituitary.

In this book important workers with original contributions to the chemistry of oxytocin and vasopressin as well as their pharmacology are brought together to stimulate thought, and to produce new ideas for research. Likewise, angiotensin substance P. bradykinin and related substances and the polypeptides involved in the inflammatory process such as anaphylotoxin, leucotaxine and permability globulins are also extensively discussed.

Structure, action relationships and the effects of putting in different amino acids here and there on the action of oxytocin and vasopressin were presented. Angiotensin was studied extensively. One would have supposed therefore that there would be agreement on the role of angiotensin in hypertension, but instead there was disagreement on the cause of hypertension and on the role of angiotensin clinically.

The discussion of kinins was especially interesting Kallikrein present in urine and the pancreas causes a fall in blood pressure and is certainly similar to, if not identical with bradykinin which was described by Rocha e Silva in 1948. Schachter, the editor showed the wasp has a similar very powerful substance which it uses in its own defense. All in all the symposium was very informative and by comparison with a similar one held six years before, this one had a much wider scope.

ELECTROPHYSIOLOGY OF THE HEART by Brian F. Hoffman, M.D. and Paul F. Cranefield, Ph.D. McGraw-Hill Book Co., Inc., New York, New York, 1960, 289 pp., $12.50.

Reviewed by: LOUIS H. NAHUM

This book is almost entirely concerned with presentation and discussion of records obtained from registration of transmembrane potentials from single fibers of heart muscle. Such action potentials recorded by a micro-electrode placed within single cells in the muscle anywhere in the heart, are of course the basic sources from which the electrocardiogram, as recorded by any type of surface lead, arises. Because there are so many cells of different types having potentials of different durations, the situation in the heart is extremely complicated and it must be said for the older electrocardiography that in spite of this fact, a great body of useful knowledge of great practical value has grown up.

Both anatomically and physiologically the older investigators recognized that the SA node is made up of different types of cells than the A-V node and purkinje system. They knew that atrial muscle was different from ventricular muscle and that an unknown mechanism existed in the A-V node to retard the excitation process in its drive towards the ventricles. Even ectopic foci in both atria and ventricles were considered to arise from the specialized conduction system rather than from the myocardial cells themselves.

In this book will be found a clearer understanding of the above observations from an analysis of the different kinds of potentials that exist normally in the SA node, the A-V node, the His bundle and the purkinje fibers in ordinary atrial and ventricular muscle fibers. The alterations of these potentials by changes in heart rate, temperature, electrolytes, oxygen supply, physiologic neuro-humors like acetyl-choline, epinephrine, and drugs like digitalis and quinidine are presented clearly.

It is clear that some aspects of the electrocardiogram will be more difficult to solve from transmembrane potentials alone. The injury current, the variations in ST and T and the meaning of the different leads can hardly be expcted to be resolved from potentials of individual fibers, the complexity of the heart being what it is. On the other hand why cells in the SA node and occasionally elsewhere serve as pace-maker, why the delay in A-V conduction, why different excitabilities exist in various types of fibers may lead us to a clearer understanding of the genesis of many types of cardiac arrhythmias. For these reasons the potential value of the material in this book cannot be overestimated.

Of the nine chapters in this book chapter 1 is devoted to a discussion of the techniques for obtaining action potentials from individual cardiac fibers, various types of records from different fibers and the relation of these records with those obtained by external leads. Chapter 2, deals with the electrical properties of excitable cells and a summary of what is known concerning the ionic bases for resting membrane and action potential. Chapters 3, 4, 5, 6, 7 are more detailed in their discussion of the potentials obtained from atrim, ventricle, S-A node, A-V node and purkinje fibers respectively. Chapter 8 discusses excitability of heart muscle using both anodal and cathodal stimuli. The anodal stimili are particularly important because they seem to throw light on the "supernormal period" occasionally seen in some arrhythmias in humans, though not present in normal hearts. One point of interest to this reviewer is the suggestion by the authors that the U wave represents the terminal portion of the action potential of the purkinje system. This is the first time such a view has been proposed.

Chapter 9 is an excellent summary and electrophysioligic interpretation of all the material presented earlier and is of great help to fix in the reader's mind what was important in the previous material. It concludes with a discussion of a possible ionic mechanism involved in repolarization.

This book is a sequel to the "excitability of the heart" by Brooks and others including one of the present author's. It summarizes the information known in 1955 and adds much new material in an interesting and rapidly expanding field. It is certainly of great value to physiologists and experimental cardiologists. Whether it can be useful to the electrocardiographer depends upon how seriously interested he is in electrophysiology.

Dispel Half-Truths About Radiation Sickness

There are many misconceptions about radiation sickness, one of the most common being that it cannot be treated or cured.

Actually, it can be treated and most persons will recover just as they would from any other illness, according to an article in the current Today's Health magazine, published by the American Medical Association.

The article was adopted from the Medical Self-Help Training Program developed by the U. S. Public Health Service with the assistance and advice of the AMA Council on National Security.

"Radiation sickness is not really a sickness in the usual sense of a disease caused by germs, such as the common cold," the article said. "What actually happens is that radiation has an effect only on living cells, and because our body is made up of millions of these tiny living cells their ability to function properly is definitely affected by radiation. The greater the number of these cells affected, the greater the sickness."

The basic rule for the physician or layman in treating radiation sickness is to "treat the symptoms," the article said.

If the victim complains of nausea or has a fever, these symptoms should be treated exactly as they would be under other circumstances, it said.

If the amount of radiation received has not been too great, the article said, a person can recover from radiation sickness just as he would recover from any sickness with proper care and treatment.

"Perhaps the best comparison is the individual who is in perfect health and gets a slight cold," the article said. "He normally can throw off this cold very rapidly, in a matter of a day or two, and be back on his feet and feeling well. However, the individual who is subject to cold germs and is already in a run-down condition or poor health will take much longer to throw off the effects of the common cold. This same principle can be applied in the case of radiation sickness."

The article also dispelled some half-truths regarding the physical changes which can be produced by radiation. Statements that radiation will result in hair loss and sterility and produce burns over the entire body contain only "a very small degree of truth," it said.

"It is true that if you receive a radiation exposure of approximately 300 roentgens over a short period of time there is a chance that after two or three weeks you may lose your hair," it said. "But in several months your hair will grow back just as good as it is today.

WOMAN'S AUXILIARY

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Mrs. Isidore S. Geetter, President of the Woman's Auxiliary to the Hartford County Medical Association reports that since October of 1960, they have given uninterrupted volunteer service to their Hartford Meals-on-wheels program, delivering meals to needy aged and infirm residents referred by the various social agencies. One morning each week two volunteers from the auxiliary drive their own cars, pick up the prepared meals, and deliver them to the prescribed patients along a designated route, and then return the empty containers to Jefferson House where the hot meals are prepared.

Hartford County supplied volunteers to assist in the program of pre-school vision screening of approximately 2,000 pre-school children, as well as assisting with volunteers in the Glaucoma Detection Clinic, both programs having been sponsored by the Connecticut Society for the Prevention of Blindness. As a result of the work of the Glaucoma Detection program, there were 79 referrals out of 982 examinations, with eight positive and six suspicious cases.

The Hartford County Legislative Committee has been very active in distributing the record "Operation Coffee Cup" with Ronald Reagan as narrator. It has been played before a variety of groups, and has resulted in many letters being sent to our Congressmen urging them not to support H.R. 4222.

For the third consecutive year, the Mental Health Committee held a tea for the patients at Undercliff Hospital in Meriden, having donated the homemade refreshments, as well as supplying the prizes for the bingo game after the tea.

Hartford County Auxiliary's Fund raising programs have been singularly successful, with the result that over $3,000.00 has been awarded this year in scholarship aid to deserving medical and nursing students.

ART EXHIBIT

CONNECTICUT PHYSICIANS' ART ASSOCIATION

President: John M. Freiheit, Waterbury

The 1962 exhibit of the Connecticut Physicians' Art Association will be held during the Annual Meeting of the Society, which will be held at the Statler-Hilton Hotel, on May 2, 3, 4, 1962. Members of the Women's Auxiliary to the Society will participate in the exhibit and children of members of the Society are also invited to submit entries. Exhibits will be received on Sunday, April 29th at a desk located in the lobby of the hotel. Further details will appear in the next issue of Connecticut Medicine.

OBITUARIES

Aaron Paul Pratt, M.D.

1891 - 1961

Dr. Aaron P. Pratt, 70, a Windsor physician and active in town affairs, died November 8, 1961 at the Hartford Hospital. He formerly resided on Broad Street.

He was born at Framingham, Massasuchetts, January 30, 1891, and had lived in Windsor 38 years, before moving to Tolland two months ago. He was educated in the Framingham schools, graduated from Clark University, and received his master's degree in Public Health from the Harvard-MIT School of Public Health. He was instructor in Public Health Administration at the Public Health School of Harvard-MIT 1919-1922.

Dr. Pratt received his M.D. degree from Harvard in 1922, and served his internship at Hartford Hospital. He was a fellow of the American Medical Association, a member of the Association of Medical Examiners of Connecticut, and was medical examiner in Windsor for 31 years. He was a member of the Hartford County Medical Association and was president-elect of that organization in 1945, an office he was unable to fill because of failing health.

He was a member of the Connecticut State Medical Society, the American School Health Association and the Hartford Tuberculosis and Public Health Society, Windsor Branch.

He also served at one time as a district health officer in the Maine State Department of Health.

Entering practice in Windsor in 1924, Dr. Pratt had his office there until his retirement in 1956. In addition to this private practice he was physician for the Loomis School in Windsor for 31 years.

Once settled in Windsor, his life followed the pattern of the family-physician of tradition. To him the people of his broad community were in the biblical sense, his 'flock', to be guarded, protected and served, without regard to recompense or personal physical discomfort.

Dr. Pratt lived his entire professional life in Windsor, truly consecrated to the care of the ill, and the injured, and the sick at heart. His understanding and compassion knew no bounds. He was confidante, counselor, friend and physician. As often as was possible he brought healing; always he brought comfort, courage and hope. And always, if the end were near he remained at the bed-side to help the patient over the last dark and lonely barrier, and to compose the stricken family.

He was a life member of the Descendants of the Founders of Hartford, being descended in two lines from Thomas Hooker.

He served as a second lieutenant in World War I in the Eighth Division. During World War II, he was medical examiner for Draft Board 7B and was chairman of the medical committee for the Red Cross. Later he became the head of the Medical Group of the Windsor Civil Defense, a position he held until 1956.

Dr. Pratt was a member and former trustee of the First Church in Windsor, Congregational, a member of the Windsor Historical Society, and a member of Gray-Dickenson Post Number 59, American Legion. He was active in Boy Scout work in Windsor for many years. In recognition of his many contributions to his community, Dr. Pratt was named outstanding citizen of the year 1948 in Windsor by V.F.W.

He leaves his wife, Mrs. Agnes Daniels Pratt of Tolland, a son, Aaron Pratt Jr., of Windsor; a daughter, Mrs. Mary Agnes Wine of Portland, Maine; a twin brother, Joshua C. Pratt of Framingham, Massachusetts; and another brother, Newton C. Kennedy of Framingham; two sisters, Miss Marie L. Pratt of Framingham, and Mrs. Charles H. Traiser of Milton, Massachusetts, and six grandchildren.

H. G. Thompson, M.D.

William Howard Treat, M.D.
1880 - 1961

Dr. William Howard Treat died at his home in Derby on December 24, 1961 of a coronary. He was 81 years of age. He was graduated from the Yale Medical School in 1906 and interned at Elizabeth General Hospital, Elizabeth, New Jersey and did graduate work in eye, ear, nose and throat at Manhatten Ear, Nose and Throat Hospital and was for many years a member of its staff and of Griffin Hospital in Derby.

He held office hours days and evenings (he was in his office on the day before his death). Dr. Treat never lacked for work but always had time to visit and be a real advisor; he thus never had an aging problem and all who knew him felt that he changed very little over the years, always being spry, sharp and cheerful.

He was a member of many fraternal and religious organizations and was generous to the extreme, both with his time and financially. It is well known that many young peoplle owe their education and start in life to him. He is survived only by an older sister, Miss Grace Treat. Truly it can be said that we in the profession and the community are most grateful to have had such a friend and neighbor.

Samuel B. Rentsch, M.D.

Ralph Benjamin Cox, M.D.
1876 - 1961

Ralph Benjamin Cox was born on October 31, 1876, in Kingsport, Nova Scotia, the son of a shipwright. He himself served as cabin boy and later able seaman on square-rigged ships and four-masted schooners sailing out of Nova Scotia during the summer months. His education included attendance at Kingsport schools, King's County Academy, Dalhousie University, and McGill University School of Medicine, from which he graduated in 1902. He then spent a few months in postgraduate training at New Haven Hospital and served for a time on ambulance duty in Bridgeport, Connecticut.

In 1902 he began country practice in Collinsville, Connecticut, where his father was working as a blacksmith for the Collins Company. Dr. Cox considered this merely a temporary location, as he planned to practice in western Canada. However, in 1905 he married Florence Hough of Collinsville and purchased the house on Main Street where he lived and practiced medicine for another fifty-six years. Prior to this he practiced from rooms over the local drug store and, having a degree in pharmacy, filled in for the pharmacist when necessary.

A bicycle was his first means of transportation, and on this he made calls as far away as Plainville and Bloomfield. Later he used a horse or team and in 1909 became the fourth resident of Collinsville to own an automobile, an Overland. In 1906 he presented a paper to the Connecticut State Medical Society on his use of beef blood for the local treatment of severe burns resulting from the Ensign-Bickford Company explosion of that year. Dr. Cox soon became a dependable institution in the town and was greatly missed when he joined the Canadian Army Medical Corps in the First World War. He commanded a large hospital in England during the great influenza epidemic and later served on hospital ships ferrying wounded and ill back to Canada. He received his honorable discharge in 1920.

In 1952, when he was honored by the Connecticut State Medical Society and McGill University Alumni at the celebration of his fiftieth year of practice, he told fifteen hundred assembled guests that his whole ambition was to be a country doctor. He was one of the best. He delivered almost three thousand babies at home and never lost a mother in childbirth. He performed, on a kitchen table with the help of two other local general practitioners, one of the first Cesarean sections in Connecticut. He was most revered for his warmth and humanity. Many patients, especially accident victims and mental disease sufferers, he took into his own home until they recovered. His therapy was not always orthodox, but was nevertheless effective.

In the 1920's a father of six children suffered a back injury and lost his job. Dr. Cox noted in the home some wooden toys the patient had made for his children, so he purchased the old canoe shop in town and opened a woodworking shop. Soon he employed a second patient, a former sailor, who made small boats. Gradually the business expanded to employ twenty men. Hard times came with the depression, but Dr. Cox kept the shop open to provide jobs even when he had to use all his savings to meet the payroll. The shop was sold in 1935.

In addition to his faithful care of thousands of grateful patients, Dr. Cox was instrumental in obtaining compensation payments for patients with silicosis, known locally as "grinders' consumption." He himself suffered from an occupational disease resulting from the use of diagnostic x-ray in the early years when proper shielding and protection were poorly understood. He had to have finger amputations in his later years when epidermoid carcinomas developed.

His vacations were spent in his old home town of Kingsport, Nova Scotia. He was well-known for his fishing and sailing activities on the Bay of Fundy with its renowned high tides and treacherous currents. He was a member of the AMA, the Hartford County and the Connecticut State Medical Society. He was on the courtesy staff of the Hartford Hospital, and numerous fraternal organizations. During his early years of practice he often assisted Dr. John Boucher in operations at St. Francis Hospital. Dr. Cox continued to see and advise patients during his own illness and was still in moderately active practice at the time of his death from arteriosclerotic cardiovascular disease on September 12, 1961. He died at his beloved summer home in Kingsport, Nova Scotia, and is survived by a sister, a brother, and his daughter, Miss Sarah Cox. His wife died in 1956.

A man of rare compassion, understanding, and integrity, Dr. Ralph B. Cox was truly an artist in the science of medicine.

Lawrence S. Carlton, M.D.

In Memoriam

Kingsbury, Issac W.—Hartford; Columbia University College of Physicians and Surgeons, 1903; practiced internal medicine in Hartford for more than 50 years; Dr. Kingsbury served on the medical staff of Hartford Hospital for many years and was consulting physician for the Institute of Living, Manchester Memorial Hospital, and New Britain General Hospital; his interests included history, philosophy, and anthropology; in 1951, a report by Dr. Kingsbury concerning his findings when excavating an Indian site in eastern Maine, was published in the Bulletin of Massachusetts Archaeological Society; died at his home in West Hartford, December 31, 1961, at the age of 89 years.

Hepatitis Associated With Coxsackie B5 Virus

Coxsackie B5 virus has been incriminated in a case of hepatitis, inflammation of the liver, according to a report in the current Journal of the American Medical Association.

"Hepatitis due to this agent has never been described previously in an adult," Drs. William J. O'Shaughnessey and Howard A. Buechner, New Orleans, said.

Since this virus was isolated in 1952, it has been shown to produce several syndromes, including mild paralysis, the authors said. Although it is capable of causing liver damage in "experimental animals and possibly in human infants on rare occasions," it has never been reported to produce obvious signs of liver disease in adults before, they said.

The virus was found in a 21-year-old expectant mother who developed an illness marked by fever in which hepatitis was associated with inflammation of the eyelids and nervous system, the two physicians reported. The heart and kidney also were affected, they said.

The recovery of the Coxsackie B5 virus "made it seem entirely reasonable to incriminate this agent as being responsible for the entire clinical picture," they said.

The woman was critically ill for a week, they said, but both mother and child survived.

Health And Safety Tips

Today's Health, the magazine of the American Medical Association, offers a few common-sense suggestions about colds. The "remedy" is the same as in Grandma's day. Stay home, in bed if you can, take aspirin for the discomfort, keep warm, gargle to ease a sore throat. Various vitamins, ultraviolet light and bacterial vaccines have been offered as cold cures. Carefully controlled experiments have discredited all of them.

Mothers who have colds should wear masks when attending small infants. Colds in young babies should be treated with respect. If the baby has a severe cold, call a physician. Babies suffer much discomfort with a cold, and there's always the chance that it isn't a cold but something more serious.

"Present information leads us to believe that the common cold is a group of infections caused by a number of different but closely related viruses. These diseases have in common the fact that the incubation period is short—from one to four days—and the symptoms are scratchy throat and cough, headache, occasional fever. The cold itself lasts from three to six days, longer only if complications develop."

The Importance Of The Dietary History To The Physician

The science of nutrition has made rapid progress in the past 25 years, but its impact on clinical medicine has been slow. There has been an unaccountable delay in the use of nutritional advances by the practicing physician. Medicine has for so long a time devoted its energies to the detailed study of pathology and disease that it has overlooked the importance of nutrition as an etiological factor of major significance. The vitamins, of course, have received more attention than they deserve, especially the pure ones in pill form. The vitamin deficiencies have played an important role in the advances of nutrition, but their significance is meagre compared to the vast significance of malnutrition caused by improper, unbalanced, and inadequate protein intake.

Dr. George Minot has stated, "The most fertile field in the world of medical research today is nutrition. Nutritional studies regarding the lack of food elements, the faulty distribution of food, and the great value of proper food for children must be of primary concern."

Dr. Minot continued, "An adequate dietary history is difficult to obtain and yet it reveals a great deal about the patient. Greater attention should be paid to dietary histories and to the importance of the effects of foods."

The neglect by the physician of the dietary history is almost universal. All too often the sole comment noted in a long detailed case history is the casual remark, "Nutrition is good." This means that the patient was not emaciated. Such a comment is worthless for its implication may be directly contrary to the facts.

An adequate dietary history will provide a vast background for research as the years go by. A major difficulty in estimating the influence of food on health is the long life span of the human animal. It may take 30 or 40 years of poor eating habits to kill a human being.

In my own practice, I take a dietary history on almost every patient. Since time is usually short in a doctor's office, I have devised two quick, easy methods. One method is to give the patient a mimeographed form to fill out, prior to my seeing him. This takes the patient about one to two minutes to complete. By a glance at the completed sheet, I obtain what I believe is a good idea of what the patient eats.

Generally, though, I obtain a dietary history by direct questions. I usually fire these questions quickly, one after the other, at the patient. My first question is, "What did you have for breakfast today?" The most frequent answer is, "nothing," or "coffee and toast," or "coffee and donuts." At this point, I usually suggest that orange or grapefruit or juice be included in the diet. I point out that Vitamin C food should be included in the breakfast, and usually tell the patient to include an egg with his breakfast. I feel that an egg is one of the finest food items available. I think that a 5¢ or 6¢ egg is preferable to a 5¢ vitamin tablet.

If the person has cereal and milk for breakfast, I often suggest that the egg be alternated mornings with the cereal, or that the egg be taken in addition to the cereal, if the person's appetite is that large.

Often, the patient states that he has no appetite in the morning, and just eats coffee and two pieces of toast. Here my suggestion is to substitute one egg for one piece of toast.

Often the patient states, "I just can't eat anything for breakfast; I would throw it up." I then ask what he eats later in the morning. Usually, I discover that he has coffee and donuts at 9 A.M. I then suggest that an egg sandwich with a glass of milk would be a wiser choice. For those who are unable to get in their Vitamin C in the morning, I tell them to have some juice or grapefruit with their dinner.

I then ask how many slices of bread is eaten in the course of a day. If the patient is overweight, as so many are, I limit the number of slices of bread.

I then inquire about the lunch. If it consists of a sandwich and coffee, I usually suggest milk instead of the coffee. Usually, I ask how much is paid for the coffee. If the person says a dime, I usually go into a rage. "What, you waste 10¢ on colored water? Why, you must be rich to waste money that way. Milk costs only 10¢ and you really get something for your money when you buy milk."

My next question is how much milk is used in a day. I tell all my patients from five to 85 that they should use at least three glasses of milk daily. Three glasses of milk provide 24 grams of good animal protein, and go a long way towards the total of 70 or 80 grams of protein required daily. If the patient is overweight, I often suggest the use of skim milk or skim milk powder. If funds are limited, I point out how economical and easy it is to use the modern skim milk powder.

Often, the patient says he is allergic to milk, or that it is constipating or laxative. In such cases, I suggest cheese. I have also found that milk can be increased in the coffee, without causing these untoward reactions.

As for dinner or the main meal, I find generally that it is well-balanced. I think that the average housewife has at this stage learned the importance of a balanced meal. Often I find that a patient not only has a full meal with dessert, but also eats three slices of bread with the meal. The only thing I suggest then is the elimination of the three slices of bread with the meal, if the person is overweight. A common finding is the lack of green or raw vegetables.

I always specifically ask about meat. I have discovered that many people do not eat meat, for various reasons. This is especially true in the older age groups. Often the teeth or dentures are inadequate, and the person avoids meat except for occasional hamburg. These people have the misconception that meat must be pulverized before it can be swallowed. Many in this group chew the meat and then expell it. In these cases, I instruct the person to use a sharp knife to cut the meat in small pieces and then swallow it. As far as I know, the stomach will handle it without difficulty.

There are many misconceptions about meat, particularly the color. It is amazing how many people in this day and age avoid red meat because they think it causes high blood pressure. I tell my patients that I don't care what color the meat is, nor how it is cooked. Meat is meat, as far as I am concerned, and I don't care whether it is green or red or black and blue. I have had many a woman tell me she wouldn't give her children frankfurts, because she felt they were harmful, but she readily poisons them with huge quantities of naked calories in the form of soda and sugar and sweets and cookies and pastry.

I ask everyone about liver. I know of no other food that has such high quality proteins, plus as many vitamins and minerals. It seems to me that most of my patients with diseases don't seem to eat or like liver. I tell all my patients to eat liver once a week. Occasionally, a patient says that liver is too expensive. I then discover that he is referring to expensive calves' liver. I tell them that I don't care what kind of liver they eat. It can be pig, or beef, or chicken liver, or whatever kind fits their taste or pocketbooks. If the patient is a woman, I ask if she ever serves chicken. If she says, "Yes," I next ask what she does with the liver and gizzard. If she says she throws them out, I get very angry and say she should throw out the chicken and keep the liver and gizzard. Of course, I then explain that chicken is good food, but that she should also eat the chicken's liver and gizzard.

I have a good deal of fun with sardines. The ordinary can of Maine sardines costs only 10¢ for over three ounces of high quality animal protein, all cooked and ready to eat. In addition to the protein, it contains vitamins and calcium. A 15¢ so-called therapeutic vitamin pill in no way compares with the excellence of three ounces of good animal protein at 10¢.

Almost all my patients ask me about the oil in the sardines, because they are all quite sure that it isn't good for them. I tell them that their body requires a little unsaturated cottonseed or soy bean oil. Sometimes it is hard to convince them but I usually succeed.

In summary, as I have analyzed patient's eating habits over the years, I have found that naked calories, in the form of sugar and sweets, and pop and soda, and cake and candy, have crowded out the essential foods. For example, I don't permit a child to have ice cream at 4:30, which I know would interfere with his consumption of meat and vegetables at 6:00, but he can have the ice cream for dessert. In my locality, I have been a great salesman for the milk and egg and meat industry, but if I had my way, there would be a depression in the bread and cake business. Bread tastes good, especially in the form of rolls or fresh rye bread. It is cheap, and easy to eat, even if you don't have good teeth. By the time I have instructed a patient in the necessary requirements there is no room for much bread, or rolls or pastry. Ofttimes, I have achieved fabulous results with cardiac or hypertensive patients by the simple expedient of forbidding the use of bread or flour products. Even greater is my opposition to sodas and coke-type drinks, whether carbonated or not. If it were up to me, there would be a tax of 5¢ or 10¢ on every bottle, with the tax money to be spent on furtherance of good nutritional practices.

Robert R. Levin, m.d.
Hartford

This article prepared at the request of and approved by the Sub-Committee on Nutrition of the Committee on Public Health of the Connecticut State Medical Society.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 MARCH, 1962 NUMBER 3

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PAUL P. SWETT MEMORIAL ISSUE

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1. Griffith, R. S.: Antibiotic Med. & Clin. Therapy, 7:129, 1960.

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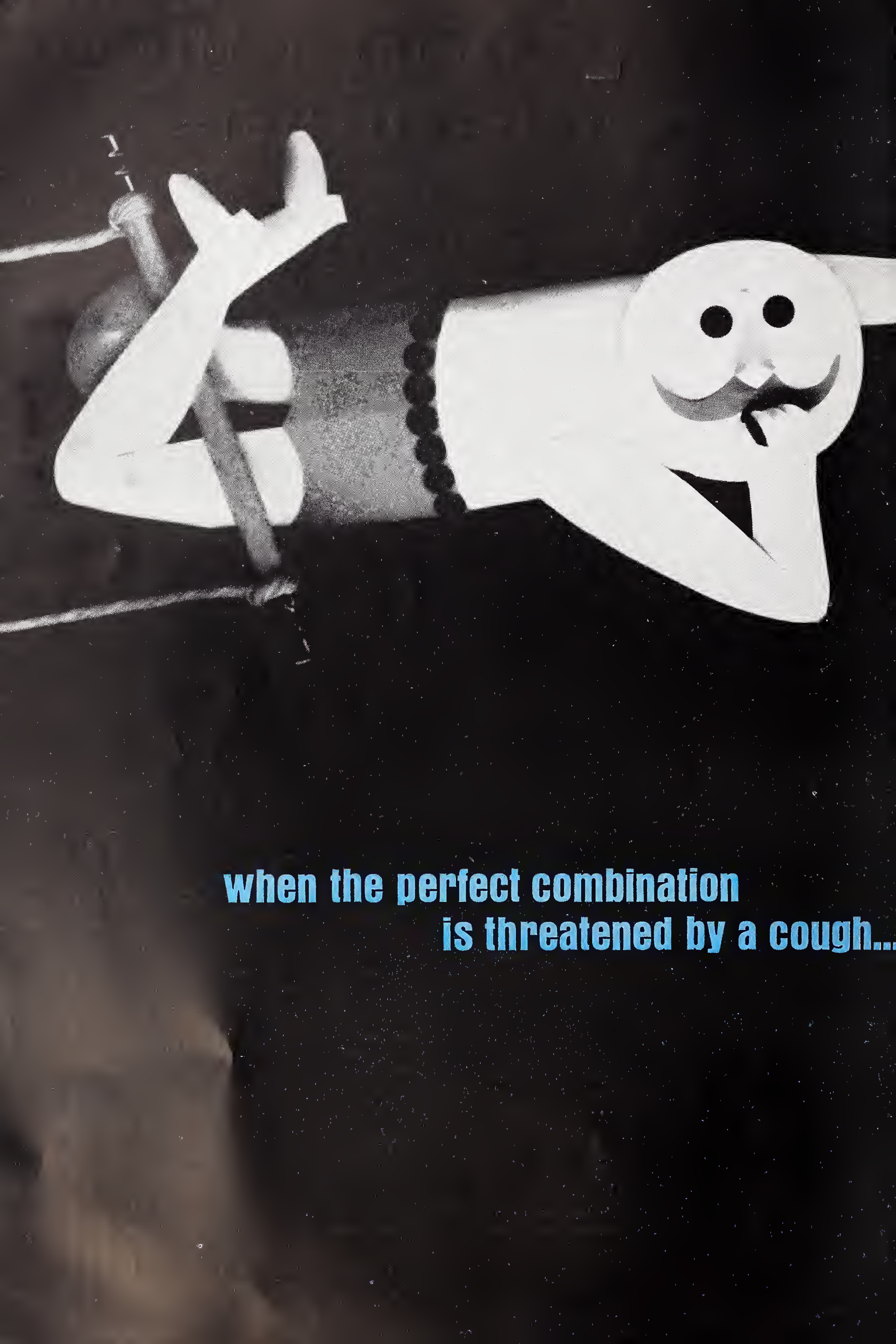
when the perfect combination
is threatened by a cough...

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VOLUME 26, NO. 3

"Notice any change, Mrs. T.?" "*Well, Doctor... When I realize*
that I looked forward to teaching... really enjoyed being with th
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PAUL PLUMMER SWETT, M.D.

Born in Granville, Massachusetts, August 23, 1882.

Died in Bloomfield, Connecticut, August 2, 1950.

M.D., New York University School of Medicine, 1904.

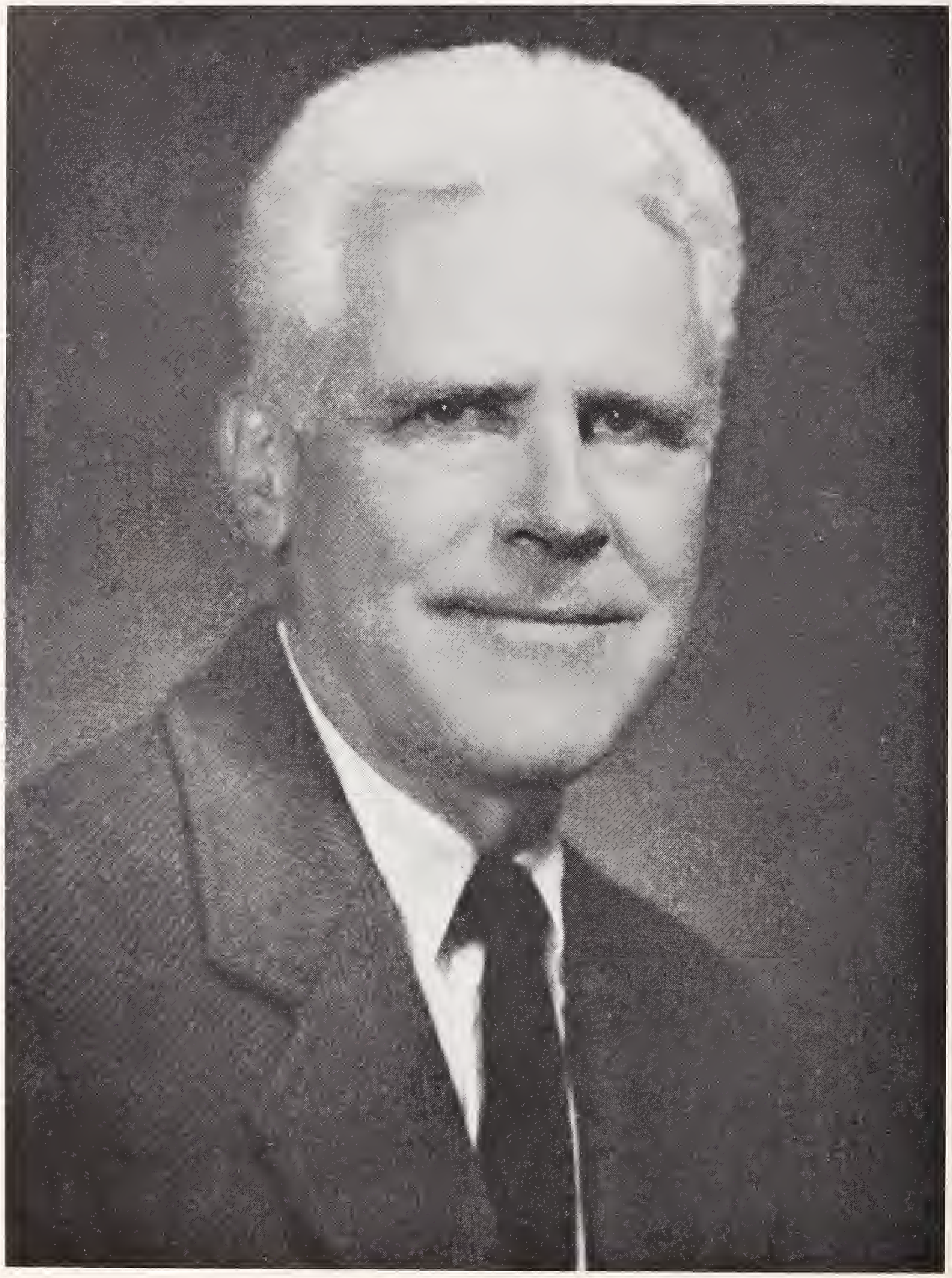
Staff Appointments:

- Hartford Hospital, Active and Consulting Staffs
- Newington Home for Crippled Children, Active and Consulting Staffs.

Consulting Staff:

- Bristol Hospital
- Neuro-psychiatric Institute of the Hartford Retreat
- Manchester Memorial Hospital
- Meriden Hospital
- New Britain General Hospital
- William W. Backus Hospital, Norwich
- Day Kimball Hospital, Putnam
- Rockville City Hospital
- Johnson Memorial Hospital, Stafford Springs
- Charlotte Hungerford Hospital, Torrington
- Waterbury Hospital
- Windham Community Memorial Hospital, Willimantic
- Litchfield County Hospital, Winsted
- Cape Cod Hospital, Hyannis, Massachusetts.

Member: American Academy of Orthopedic Surgeons
American Orthopedic Association
American College of Surgeons
American Medical Association
Eastern States Orthopedic Club
New England Surgical Society
Hartford Medical Society
Hartford County Medical Association
Connecticut State Medical Society
Editorial Board, Connecticut State Medical Journal.



PAUL PLUMMER SWETT

Endowed with a charming personality, an unusual understanding of human psychology, and extraordinary surgical skill, Paul Plummer Swett made many friends and rapidly developed a tremendous orthopaedic practice. Almost daily trips were necessitated to one or another of the many community hospitals throughout the State on which he served as consultant. The advent of World War I and a diminishing staff at the Hartford Hospital brought him an increasing number of patients for care.

Not all his practice was in hospitals, however; frequently, he visited patients in their homes, in the city and out in the country, to reduce fractures, especially those of the hip. The kitchen table found in all households at that time became a convenience for his portable plaster machine by means of which patients were immobilized in spica casts. The procedure was so perfected that only one hour was required to anesthetize the patient, reduce the fracture, apply the spica, and have the patient back in bed.

On one occasion I went with him into the hills west of Winsted on a bitter winter day. Finally, the snow was so deep we could go no farther. We were met by a sled and taken to a farmhouse where a hip fracture was reduced in the manner described above. Dr. Swett's personal interest and soothing personality helped his patients through the dreary recovery.

As people became more hospital conscious, home care of fractures rapidly declined but for some years large numbers of both intracapsular and intertrochanteric fractures were treated in cast at hospitals. He nailed a few hips with common nails before the advent of the Smith-Petersen nail, but not too many.

Because of the difficulty in maintaining reduction of fractures, Dr. Swett early used the Lane plate and presented a paper to the American Orthopaedic Association on this subject when he became a member in 1917. He did numerous surgical corrections of malunited and ununited fractures and he was most skilled in this most arduous of surgical endeavors. The prevalence of motorcycles caused many severe compound leg fractures the treatment of which even before the days of "Wonder Drugs" was accomplished with a relatively low incidence of infection. Dr. Swett's skill in successful manipulation of elbow, forearm, and wrist fractures was outstanding. Many fractures were reduced in his office under vitreous oxide or primary ether anesthesia.

Dr. Swett was much interested in children's orthopaedics and corrected great numbers of congenital and polio deformities through current established procedures. Congenital dislocation of the hip was usually handled by the closed method but Dr. Swett did not hesitate to do open reductions with surprisingly satisfactory results. His ability to recognize an acute septic epiphysitis and establish early drainage prevented extensive destruction and saved many lives. His treatment of tuberculosis, on the whole, was conservative, using rest and support, and doing relatively few fusions. In 1940 he published a paper with George Bennett and Dana Street on "Pott's Disease;" his analysis of 350 cases still is a much quoted reference on the healing phases of tuberculosis of the spine.

Before 1920 Dr. Swett was doing extensive synovectomies for rheumatoid arthritis. It was not uncommon for him to remove a "pus basin" full of swollen synovial tissue from severely involved knees. Such patients suffered relatively little postoperative discomfort and joint function returned rapidly as synovial regeneration seemed to occur by about fourteen weeks. These synovectomy cases, published in 1923, attracted much interest and discussion, especially when shown at meetings of the Eastern Orthopaedic Club which met from time to time at Hartford. This select group of which Dr. Swett was especially fond included such well-known personages as Lloyd Brown, Loring Swain, and Philip Wilson of Boston; George Bennett and William Baer of Baltimore; DeForest Willard and Bruce Gill of Philadelphia; James Wallace of Pittsburgh; Armitage Whitman of New York; and Robert Harris and William Gallie of Toronto.

Until 1930 when Dr. Swett suffered a heart attack, his capacity for work was amazing. Thereafter, he returned to work at a reduced pace and retired from practice in 1935.

Sidney H. McPherson, m.d.

Spina Bifida: A Follow-Up Of Ninety Cases

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PARALYSIS associated with spina bifida is of such varying degree that it is difficult to assess the prognosis. It is desirable to know what degree of useful function may be expected. Most of the literary contributions have been concerned with technical phases of repair of the associated meningocele, and with specific problems of management rather than the over-all result obtainable. In this investigation ninety cases have been reviewed to determine the extent of the problem of management, the complications that may be expected, and the results that may be anticipated. No attempt has been made to evaluate individual procedures employed, but rather the over-all result through the use of all habilitation techniques.

Material

All living patients in this series were examined and/or interviewed, with the exception of four older patients who are living in institutions or nursing homes. (Table I).

The ratio of fifty-five females to thirty-five males is similar to previously reported series.[1, 5]

Surgical exploration or repair was done in every instance before admission for habilitation. One-third had been operated upon elsewhere in the first month of life, and 57 per cent were operated by age six months; therefore, we are not able to arrive at any impression concerning the relative merits of early versus late exploration.

TABLE I

YEARS OF FOLLOW-UP		AGE FIRST ADMISSION	
Less than one	8	0-5	41
1-3	8	5-10	23
3-5	11	10-15	21
5-10	14	15-20	1
10-15	25		
15-20	13	O.P.D. visits only	4
20-25	6		
25-30	5		

with manifest lesions outnumbered those with occult lesions four and one-half to one (Table II).

TABLE II

Manifesta	72
Occulta	16
Tumor S bone defect	2
Male	35
Female	55

Significant fetal wastage or known congenital anomalies in the family were present in 19 per cent of the cases (Table III); 10 per cent of the patients had other congenital anomalies exclusive of hydrocephalus. This is slightly more than reported by Owens,[5] and somewhat less than reported by Ingraham and Swan,[3] and Fisher, Uihlen, and Keith.[2]

The incidence of spina bifida is estimated to be 1:1000 normal births, but congenital malformations

TABLE III
ASSOCIATED ANOMALIES AND FETAL WASTAGE IN FAMILY

Sibling	
Meningomyelocele	1
Congenital Heart	4
"Miscarriages"	9
Cerebral Palsy	1
Hare Lip	1
Sibling C absent hand and mother C spina bifida occulta	1

From Newington Hospital for Crippled Children, Newington, Connecticut.

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may occur up to twenty-five times more often where there is a history of siblings with anomalies.[4,5] This relationship of associated anomalies appears to be borne out in this series.

A large number of these patients represent long-term follow-up which probably accounts for the long stay of admissions in this series. In more recent years admissions are for increasingly shorter periods (Table IV).

Tablle IV

Admissions	191
Total hospital stay	1707 months
Average stay per admission	9 months
Average stay per patient	20 months

Thirty-five per cent of our patients (thirty-two cases) had arrested hydrocephalus, twenty-three of these had an I.Q. above seventy while six fell below seventy and three were not estimated. For the most part, only the trainable patients were admitted; therefore, such preselection is probably the reason for the relatively high per cent of patients with relatively good I.Q.'s among this group.

Motor Status

Level of Lesion. Correlation of the level of the spina bifida with the degree of activity attained by the patient was not exact. In general, the lower the lesion, the greater the likelihood for ambulation.

Age. Age is a factor in ambulation. Only thirteen of the patients are confined to wheelchairs; eleven of these are beyond age twenty; all are above age thirteen.

Paralysis. (Table V).

Table V
Motor Status

Paralysis	
Flaccid	85
Slight spasm	2
Moderate spasm	3
Trunk and lower extremities	26
Lower extremities	23
Principally below knee (L4)	41

Nearly all of these patients had lumbosacral defects. Preselection on the basis of trainability may be at least partially responsible for this fact. As expected in lesions at this level, most of the paralyses were flaccid (ninety per cent) and involved chiefly the lower extremities and trunk. Spasticity has been strikingly absent. If muscular weakness is chiefly below the knee, bracing is not often necessary. Severely involved lower extremities usually require paraplegic-type bracing with crutches, and where trunk involvement is encountered (paralysis at L1 or above), a trunk support usually is required.

Neurological Status And Procedures

Bowel and Bladder. (Tables VI, VII, IX).

Table VI
Bowel Status

	72 cases manifesta	18 cases occulta
60 Control	45	15
6 Irregular	5	1
20 Incontinence	19	1
4 Constipation	3	1

Table VII
Urological Status

	72 cases manifesta	18 cases occulta
28 Bladder control	16	12
7 Occasional accident	7	0
55 Incontinence	49	6
Infections		
27 Frequent	26	1
23 Infrequent	20	3
40 None recorded	26	14
I.V. pyelogram 43 cases		
Normal	30	3
Hydronephrosis	8	1
Inflammatory	1	0

Table IX
Neurosurgical Procedures

Laminectomy	
Exploration	7
Anterior rhizotomy	1
Cerebellar decompression	1
Sympathectomy	
Unilateral	2
Bilateral	2
Presacral neurectomy	7

Eighty-three per cent of patients with occult lesions and 63 per cent of those with manifest lesions obtained bowel control.

Sixty-six per cent of patients with occult lesions and 31 per cent of those with manifest lesions gained bladder control. A few patients were able to attain bladder control through home instruction. Most require a period of hospitalization where direct control can be maintained over the patient's activities. Training is supervised by a urologist after clearing the urinary tract of any under-lying pathology or infection and requires the help of nursing personnel who are interested and experienced. It is important that the family be thoroughly indoctrinated in the aims and the importance of bladder training in order to assure its continuation after discharge.

Progressive Paralysis. Progressive paralysis and/or paresthesia were noted in two instances and were considered due to spinal cord traction upon the filum terminale. These patients were explored with equivocal results.

Skin Sensation And Circulation. (Tables XIV, XV, XVI).

TABLE XIV
COMPLICATIONS

Decubiti		Luxations & subluxations of HIP	
Frequent	14	Unilateral	22
Infrequent	45	Bilateral	10
None	24	Luxation & subluxation	1
None recorded	7		
Neuropathic fractures	10 cases		
Obesity	15 cases		

TABLE XV
AMPUTATIONS

Toe (S)	3
Metatarsal, foot, (B.K.)	1
B.K. amputation	3
B.K. & A.K. amputation	1

TABLE XVI
OTHER COMPLICATIONS

Burns	10
Circulatory & edema	9
Pin tract infection	4
Pneumonia	2
Cord traction	2
Hyperlordosis	10
Scoliosis	34
Combination	17

Accurate evaluation of sensory examination is not possible from our records; four cases had sympathectomies to improve circulation. Eleven per cent (ten cases) sustained fractures 11 per cent (ten cases) had thermal burns, and 77 per cent (eighty-three cases) developed decubiti of varying degrees, a few of which required split thickness or flap grafts.

One patient required successfully higher amputations (fifth metatarsal, foot, and finally, below knee), another patient had bilateral amputations (below knee and above knee), and a third case had a single below knee amputation (total—three major amputees) (Table XV).

One anterior rhizotomy was done for spasticity with relief. Laminectomy and exploration of nerve roots was done in seven cases (about 8 per cent) when myelograms revealed block or narrowing of the spinal canal. The results of these explorations have been equivocal. Only one patient had subsequent surgery for relief of hydrocephalus.

Urological Status And Procedures

(Tables VII and VIII).

TABLE VIII
UROLOGICAL PROCEDURES

Cystoscopy	37
Transurethral resection	5
Suprapubic cystotomy	4
Circumcision	7
Plastic procedures	15

Fifty-six per cent of these patients had urinary tract infection to some degree, almost half of this number were bothered frequently, and it was encountered thirteen times more frequently in the manifest lesions than in those with occult lesions. B. coli (seventeen cases) and B. proteus (eleven cases) were the most common infecting organisms.

Only 10 per cent of the patients developed hydronephrosis which occurred eight times more often in those with manifest spinal lesions.

Four deaths (less than 5 per cent) of the series were attributable to urinary tract disease and were considered renal deaths; all occurred between ages six and eleven. All four cases had been irregular or temporarily lost to follow-up.

Presacral neurectomy (Table IX) for improvement of bladder control has not been successful. One patient so treated claimed he had loss of sexual potency as a result of the procedure.

Orthopaedic Considerations And Procedures

Hip Contractures. (Tables X and XI).

TABLE X
CONTRACTURES

Hip	Flex. Abd. Ext. Rot.	49
	Adduction	2
Knee	Flexion	34
	Valgus	3
	Recurvatum	1
Tibial	Torsion	5
Femoral	Torsion	2

TABLE XI
ORTHOPAEDIC PROCEDURES

Hip	Contracture	Surgical release	Unilateral	4
			Bilateral	12
	Dislocation	Open reduction	Unilateral	2
			Bilateral	1
		Closed reduction		5
		D-B Bar		4
	Shelf	Unilateral		3
		Bilateral		1
	Shelf & varus osteotomy			1
	Varus osteotomy			1
Knee	Contracture	Wedging casts		5
Femur	Osteotomy			7
Tibia	Osteotomy			5
Skeletal traction				8

The most persistent and the next most frequent orthopaedic difficulty encountered was contracture of the hip. Muscle imbalance, loss of position sense, and persistence of sitting attitude in severely involved patients all contribute to the frequency of hip deformity and recurrence.

Fifty-six per cent (forty-nine cases) exhibited varying degrees of flexion, external rotation, abduction deformity. Only two cases had abduction deformity. The more severely involved patients are more prone to development of hip deformity or luxation. Only by trial is it possible to determine which cases will be resistant or will respond to treatment. Physical therapy, traction (usually skeletal), bracing, and open surgery were employed with varying degrees of success. Only 17 per cent (sixteen cases) required surgical release of contractures and only two were reoperated.

Luxations. (Table XIV).

Thirty-six per cent (thirty-three cases) developed luxations or subluxations; 12 per cent (eleven cases) bilateral and 24 per cent (twenty-two cases) unilateral.

The results of closed or open reduction and shelf operations have been disappointing. No truly good results are to be found in this series. Varus osteotomy with open reduction and transplantation of the iliopsoas attachment have been only recently employed at this hospital; therefore, they do not appear in this series.

Most severely involved patients need paraplegic braces. With these they seemingly do as well whether the hip is luxated or not.

Knee Contractures. (Tables X and XI).

Knee contracture occurred in 38 per cent (thirty-four cases); all of these responded satisfactorily to physical therapy and bracing. Only five cases required wedging cast and no open surgery was needed.

Tibial and Femoral Torsion. (Tables X and IX).

Tibial or femoral torsion occurred in 7.5 per cent (seven cases) in this series; five of these involved the tibia and two the femur, sufficiently to require a total of twelve osteotomies in order to facilitate bracing.

Ankle and Foot Deformities. (Tables XII and XIII).

The most common deformities encountered were those of foot and ankle. These were frequently bilateral and more likely to occur in the severely involved manifest lesions. Eighty-six per cent (seventy-eight cases) of the series developed foot and ankle deformity, requiring a total of seventy-seven open operations. Most common surgical procedures were tendo-Achillis lengthening and foot stabilization. Relatively few tendon transplants were done (ten in all).

Table XII
Foot Deformities

		MANIFESTA 72 CASES	OCCULTA 18 CASES
Equinus	Unilateral	8	6
	Bilateral	12	4
Equino-varus	Unilateral	7	1
	Bilateral	11	1
Calcaneus	Unilateral	4	3
	Bilateral	4	1
Equinus & calcaneous		5	
Plantar-flexed tali	Unilateral	1	
	Bilateral	2	
Other		7	1
Not recorded		11	1

Table XIII
Orthopaedic Procedures

Foot	TA lengthening	Unilateral	11
		Bilateral	7
	Jones procedure		7
	Stabilizations	Unilateral	10
		Bilateral	9
	Plantar fasciotomy		4
	Tendon transfers		10
	"Medial stripping"		2
	Post. tibial tenotomy		1
	Club foot casts		33
	D-B splints		9

Fractures. Eleven per cent (ten patients) sustained fractures. All but two had femoral fractures; six had multiple fractures that involved the femur, tibia, and in one instance, the acetabulum. (Fractures in other bones were not recorded.) None of the fractures was complicated by circulatory difficulty and rarely by decubiti. Only one was complicated by deformity which required osteotomy to accommodate bracing. Minimal immobilization was used to prevent atrophy and to avoid other complications of fixation (decubiti, contracture, muscle wasting, etc.).

Spinal Deformity. (Table XVI).

Thirty-eight per cent (thirty-four cases) developed scoliosis and 11 per cent (ten cases) had significant hyperlordosis that interfered with bracing. Hyperlordosis was secondary to hip flexion contracture and was treated by correction of the hip deformity. Only three patients required brace or cast correction with spinal fusion for their scoliosis.

Inequality of Leg Lengths. Five and one-half per cent (five cases) had a leg-length discrepancy of more than one inch.

Obesity. Obesity is a complication of note. In 16 per cent (fifteen cases) it required active management in order to keep the patient ambulatory.

Psychosocial Considerations

(Tables XVII, XVIII, XIX).

TABLE XVII

PSYCHOLOGICAL ADJUSTMENT

Favorable	58
Unfavorable	11
"Nervous reactions"	2
Mental health problem	1
Not recorded	18

TABLE XVIII

SOCIAL ADJUSTMENT

		MARRIED	
Favorable	63		
Unfavorable	4	Male	0
Foster home	4	Female	8
State ward	4	With offspring	6
Illegitimacy	2		
Uncertain	5		
Deceased	4		
Not recorded	4		

TABLE XIX

OCCUPATION

Employed	12	Students	50
Unemployed	3	In college	5
Living at home		High school graduate	3
Housewife	8	In high school	6
State ward	4	Grade school graduate	6
Deceased	4	Practical nurse training	1
Not recorded	2	Preschool	7

An Intelligence Quotient was obtained in sixty-five of the ninety cases. Fifty of those tested were above eighty; only eight were estimated to have an Intelligence Quotient below sixty. In general, the intelligence of this group is not unusual. The patients with arrested hydrocephalus (twenty-three cases) were not especially different.

Evaluation of "psychological adjustment" in the younger patients is difficult. This evaluation was principally based upon the examiner's personal observation of the patient, reports of psychologists, school teachers, and therapists working with the individual patients. In general, children described as and observed to be "diligent," "alert," "bright," "independent," or "normal" were classified as favorably adjusted. "Passive," "unrealistic," "poorly motivated," "insecure," "institutionalized," etc., were considered poorly adjusted.

In the older groups, social adjustment was more easily determined. Patients "with adequate social contacts," "belonging to social groups and clubs," engaging in activities such as scouting, church programs, sewing groups, parties, dances, dates, and travel by public transportation were used as criteria of good social adjustment.

Fifty-four per cent (fifty-eight cases) were considered well adjusted psychologically, and 70 per cent (sixty-three cases) were well adjusted socially (Tables XVII and XVIII).

Twenty-two per cent (twenty cases) are employed or are housewives. Among our active cases, almost all the eligible patients are in grade school, high school or college (Table XIX).

Fourteen and one-half per cent of the females in this group (eight patients) are married and several have children. No males are married.

These patients, paralyzed from birth, attained a much better psychosocial result than did a similar but smaller series of acquired paraplegics at our hospital.

Summary

1. Seventy per cent of this series have been followed more than five years.
2. There is a high instance of history of fetal wastage and anomalies among siblings.
3. Most of these trainable patients have lumbar and sacral lesions. More deformities and more complications are encountered and greater habilitation effort is needed in patients with spina bifida manifesta than spina bifida occulta.
4. Paralytic involvement below the knee does not usually require bracing. Involvement of both lower extremities in their entirety requires paraplegic bracing and trunk support is usually needed if the lesion extends to L1 or above.
5. A high percentage of these patients can be taught urinary and bowel control.
6. Urinary tract infection is frequent if urinary control cannot be established. Renal failure is the principal cause of death in this group.
7. The chief orthopedic deformities encountered are foot and ankle deformities, hip flexion deformities, and hip luxations.
8. The most frequent complications are secondary to neurological deficits (decubiti, fractures, hip luxations, burns, amputations).
9. Most of these patients made a satisfactory phychological and social adjustment to their handicaps.

Conclusions

An awareness of the multiple problems that arise in treating this group of patients together with close observation and sustained follow-up is indicated to minimize the severity of the problem. The trainable patients have a sufficiently good prognosis so that every reasonable effort should be expended to assist them in realizing that they have a good opportunity to adjust psychologically and socially.

A team approach to the habilitation of these patients is desirable; success depends upon the coordinated efforts of surgical, physical, psychological, and sociological techniques through long-range planning. Planning should project beyond the juvenile period to maintain gains established through years of habilitation effort.

REFERENCES

1. Bluestone, Seymour S. and Deaver, George G.: Habilitation of the child with spina bifida and myelomeningocele. Jour. A. M. A., 161: 13: 1248-1251, July, 1956.

2. Fisher, R. G., Uihlein, A., and Keith, H. M.: Spina bifida and cranium bifidum: study of 530 cases. Proc. Staff Meet., Mayo Clinic, 27: 33-38, January, 1952.

3. Ingraham, Franc D. and Swan, Henry: Spina bifida and cranium bifidum—a survey of 546 cases. New England J. Med., 228: 18: 559-563, May, 1943.

4. Murphy, Douglas P.: Congenital malformations. 2d Edition, 1947.

5. Owens, G., Lt.: Review of spina bifida and cranium bifidum with follow-up studies of 81 cases. Am. J. Surg., 86: 410-413, October, 1953.

> *. . . This excessive devotion to genius has its roots in a feeling that is a compound of justice and modesty much too commendable to be censored. Nevertheless, if it takes overweening possession of the mind of the novice, it destroys all initiative and totally incapacitates him for original investigation. Defect for defect, arrogance is preferable to diffidence; boldness measures its forces and conquers or is conquered, but excessive modesty flees from the battle and is condemned to shameful inactivity . . . Great men are at times geniuses occasionally children and always incomplete.*
>
> Ramon Y Cahal, *Precepts And Counsels On Scientific Investigations*

Focal Defect Of The Proximal Femur In Children

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Introduction

SEVERE congenital deformities and anomalies affecting the lower extremities in children are particularly disabling. Unless treated early, they can seriously retard ambulation and indirectly retard the general development of the child, both physically and psychologically.

The purpose of this paper is to call attention to one group of congenital malformation of the lower extremity, and to point out one plan of management. The plan of management is roughly guided by the age of the individual and the stages in treatment are geared to parallel normal development from a physical and psychological standpoint.

The Anomaly

The anomaly in point consists of a congenitally shortened, absent, or partially absent femur, in addition to which may be associated abnormalities of the leg below the knee; either in the tibia, fibula, or the foot. This particular anomaly or group of anomalies has never been accurately classified or documented in the literature. Similar deformities affecting the upper extremities have been more precisely classified in the monograph by Birch-Jensen.[1] For purposes of identification, the condition has been called the "atavistic femur" or simply a "focal femoral defect."[2]

At the Juvenile Amputee Clinic of the Newington Hospital for Crippled Children during the past five years, seven of these cases have been seen, with an age range from several months to nine years of age.

Representative examples of the deformity from a clinical and radiographic standpoint are illustrated, (Figs. 1a, b; 2a, b). In each case, there is an abnormal femur, and in one case gross abnormality of the leg below the knee. It will be noted that in both cases the level of the ankle joint on the affected side roughly approximates the knee level on the unaffected side. Herein lies one of the keys to therapy. A slightly different appearance is noted in a child with obvious foot and leg deformity in addition to the femoral defect. (Fig. 3a)

A form of management of this entity will be presented and the plan of treatment will be guided in stages according to the age of the patient, as follows:

1. Toddler—Age 1-4
2. Pre-School to Adolescence—Age 4-14
3. Adult—Age 14-on.

Treatment

According to the previous classification, treatment recommended is as follows:

Group One—The Toddler

The patient is usually seen shortly after birth or in the early months of life. A careful assessment of the case is made, including familial occurrence of similar deformities, maternal record during pregnancy, etc. A physical examination is done, noting carefully any other congenital defects. A complete X-Ray study is accomplished, including comparative leg length films, to compare with progress films to be taken during the early development of the individual. These films are essential in evaluating the growth of the abnormal extremity in relation to the normal one.

Paper based on experience from patients treated at Newington Hospital for Crippled Children, Newington, Conn., 1955-1960. Assistant Orthopedic Surgeon in charge of Juvenile Amputee Clinic.

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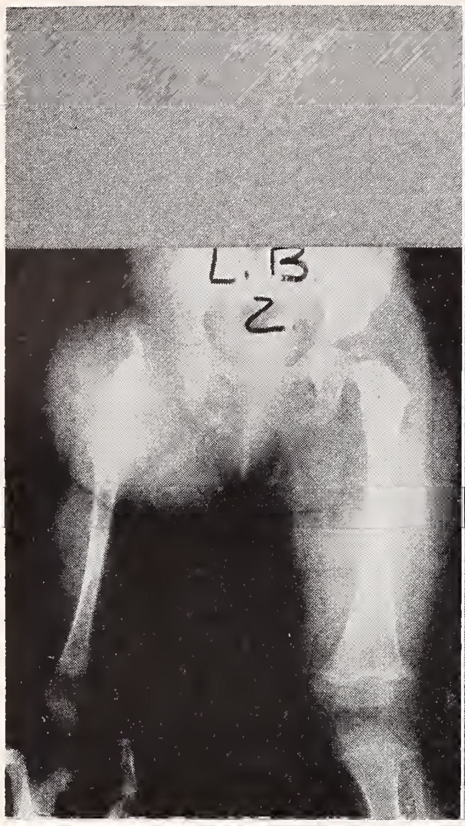

Figure 1a
X-rays of affected extremity.

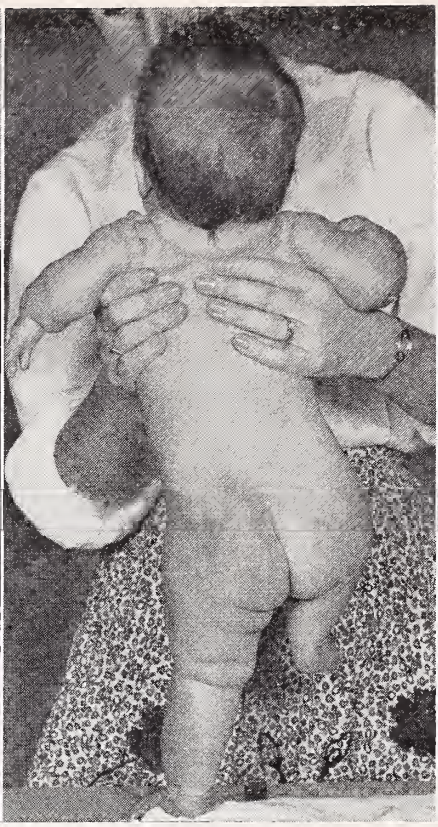

Figure 1b
Clinical appearance.

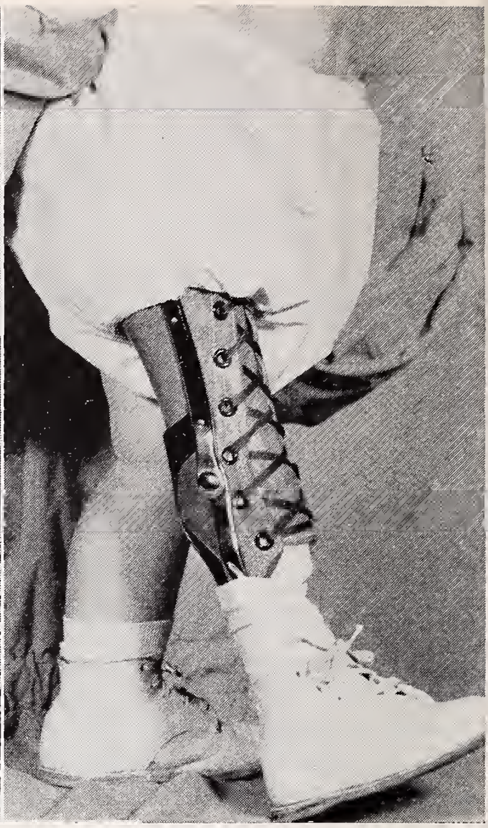

Figure 1c
Initial Prothesis.

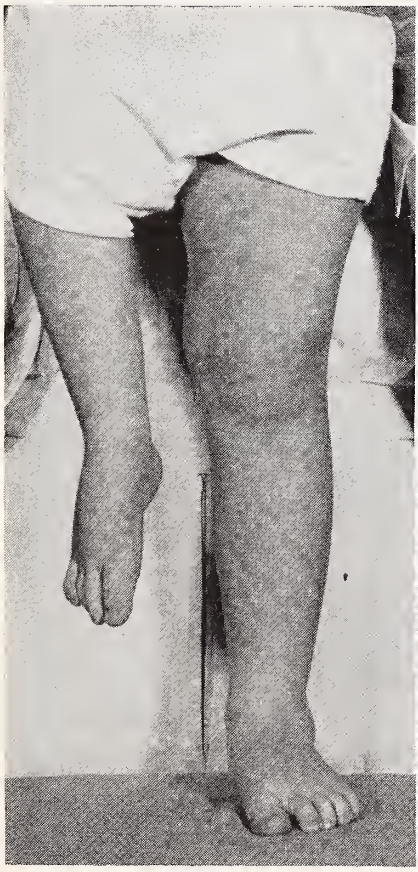

Figure 1d
Appearance at age 4.

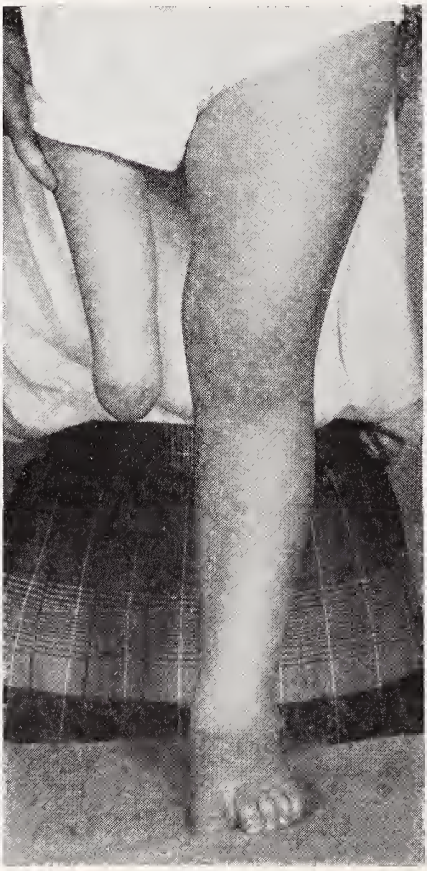

Figure 1e
Following ablation of foot.

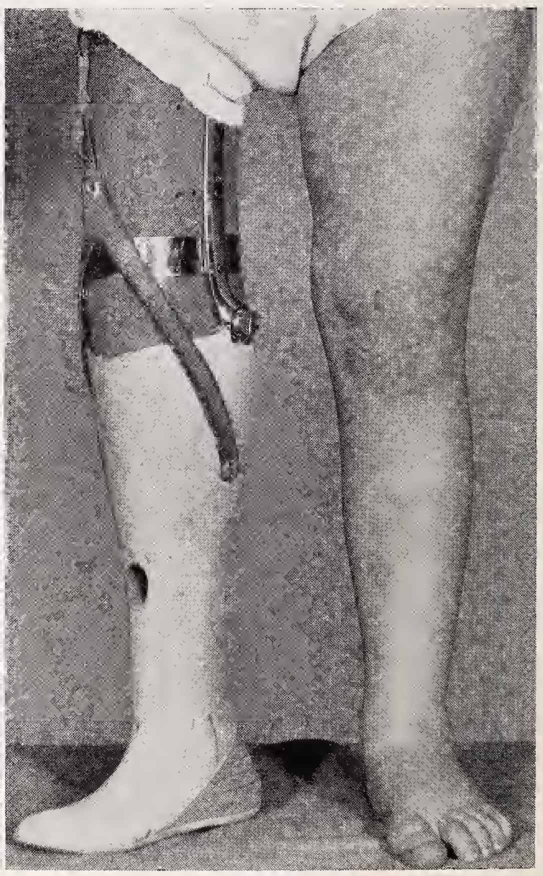

Figure 1f
Conventional prosthesis.

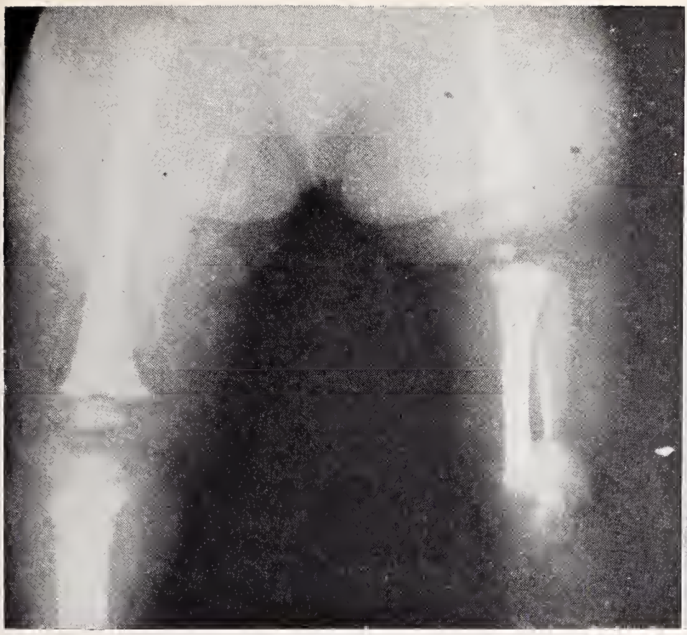

Figure 2a
X-rays of affected extremity.

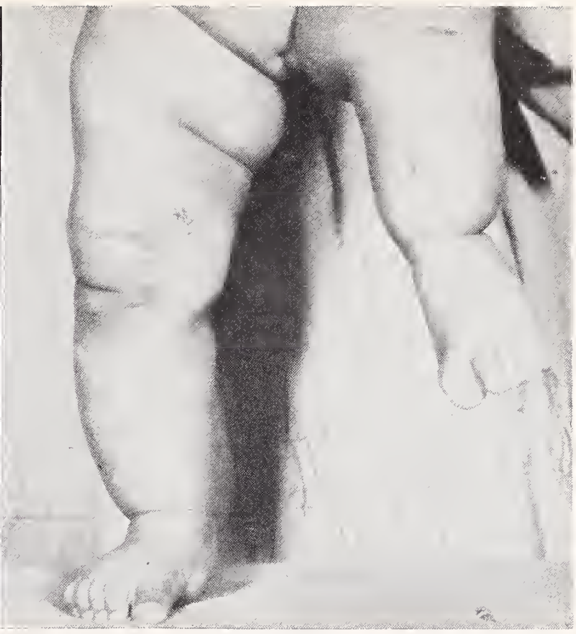

Figure 2b
Clinical appearance.

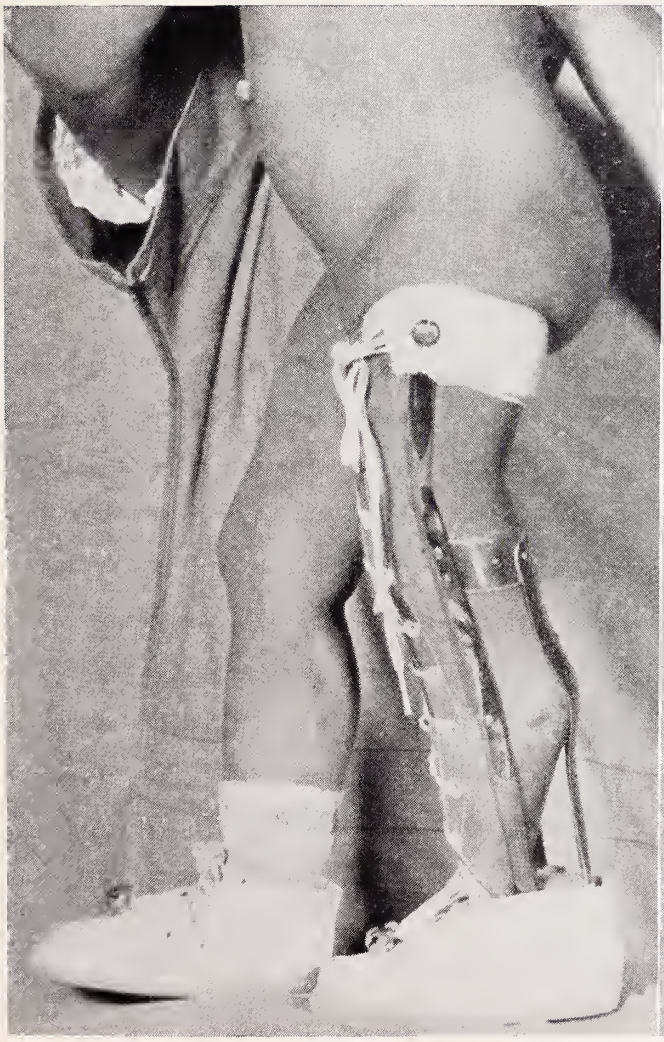

Figure 2c
Initial prosthesis, side view.

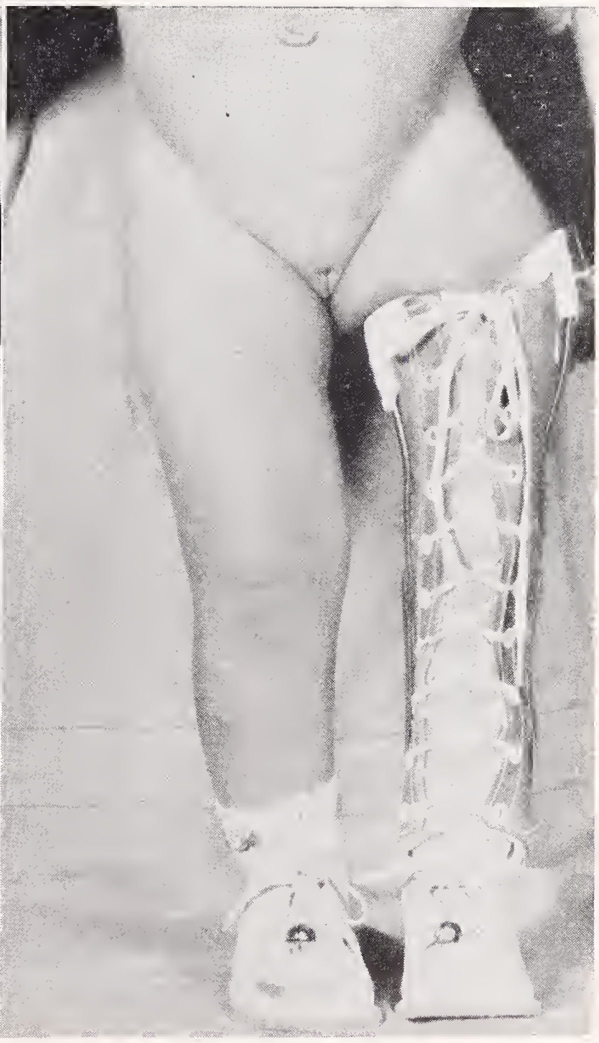

Figure 2d
Initial prosthesis, front view.

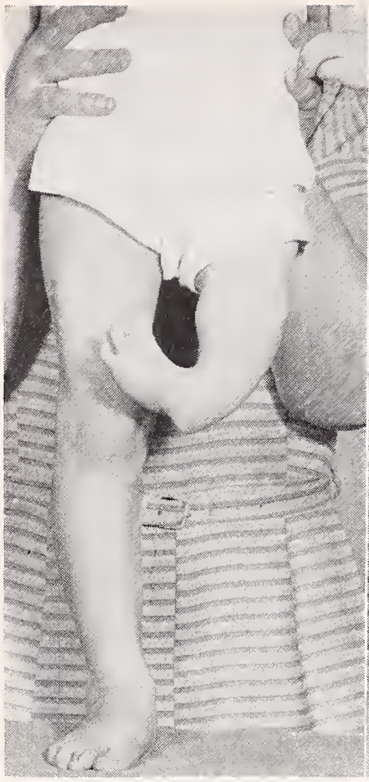

Figure 3a
Clinical appearance.

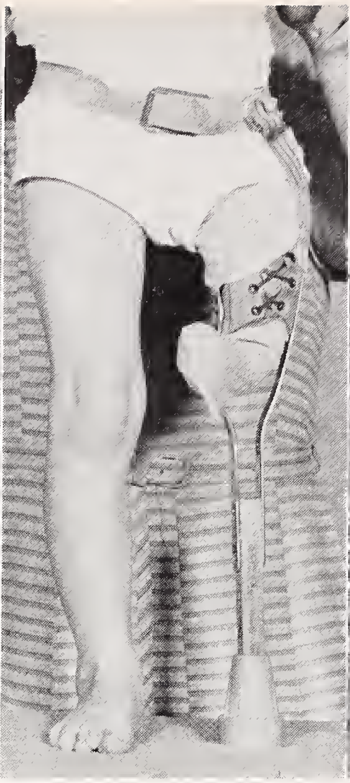

Figure 3b
Temporary prosthesis.

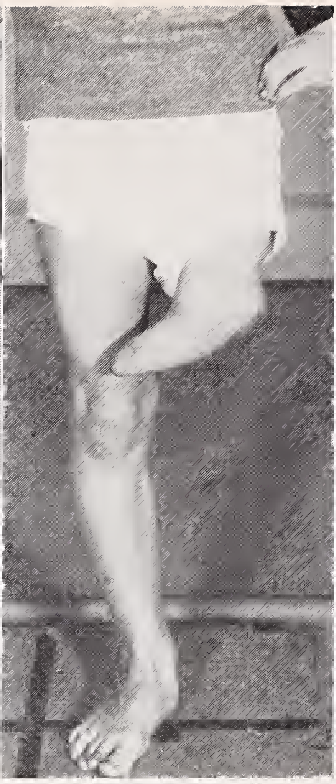

Figure 3c
Following ablation of foot.

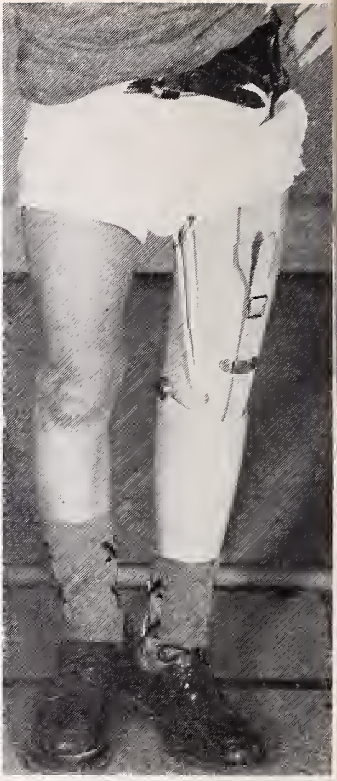

Figure 3d
Conventional AK prosthesis.

The parents are informed that no active treatment is necessary until such time that the child would ordinarily be expected to become ambulatory. When the child begins to balance on his normal leg, treatment is instituted. This may be as early as eight months of age or as late as sixteen months. There is no justification for stretching, traction, surgical release, or any other surgery at this time. At an age when the child begins to stand on his normal leg or at an age when walking would be contemplated, or shortly before, the child is fitted with a simple double upright brace with shoe attached, confining the whole of the abnormal leg in a leather or plastic lacer socket, and restoring length to approximate that of the normal leg. A pelvic band is usually necessary because of hip instability. (Figs. 1c, 2c, 2d) This type of "prosthesis" is all that is necessary at this stage. The brace is of simple construction, and allowances are made for growth so that adjustments can be made to prolong the life of the device. A more simple but less cosmetic devise is depicted in Fig. 3b. Knee motion may be introduced during this phase, but at first a knee lock is used for stability. Very little in the way of training is necessary and adaptation is rapid.

Group Two—Pre-School to Adolescence

Shortly before school age, it is helpful to modify the abnormal leg by ablation of the foot. (Figs 1d, 1e, 3c) This allows for a more standard and cosmetic prescription of prosthetics, which is at this time in keeping with the approaching entry into school and its attendant psychological impact. Amputation is carried out through the ankle joint, preserving the distal tibial epiphysis for its growth potential. Aitken and Frantz[3] have stressed the desirability of maintaining the epiphyseal growth areas in these involved extremities. Following adequate healing of the stump, the modified extremity is then fitted with a standard or slightly modified above knee prosthetic replacement. The knee joint on the affected side is ignored at this stage and the entire lever arm including the thigh and leg segments is fitted as an above knee unit. (Figs. 1f, 3d)

By fitting the entire extremity as an above knee unit, the knee joint on the prosthetic side may be slightly lower than on the normal side. If this discrepancy is going to be too great, it is probably better to postpone surgery for a period of time until growth of the normal leg exceeds that of the affected leg or until such time that amputation above the epiphysis will not preclude too short a lever arm. This is important so that one cosmetic defect is not substituted for another.

The converted leg does very well in a conventional type above knee prosthesis especially if it is contoured to the stump and if adequate instruction in gait training is given. Most of the children do not have a normal hip apparatus, so that some type of auxiliary support in the form of a silesian bandage or pelvic belt is necessary in order to stabilize the hip. End bearing can be built into the prosthesis since the skin covering the stump is adapted to weight bearing. Certainly at no time should any thought be given toward surgical stabilization of the abnormal hip by arthrodesis. In the growing child, this commonly gives rise to an increasing flexion deformity which makes later prosthetic fitting difficult if not impossible.

Group Three—The Adult

When skeletal maturity is approached (Age 14-16), an attempt can be made to stabilize the knee joint in the affected segment. This is not necessary if the knee joint is closely approximated to the abnormal hip; but if it is in the mid thigh level, arthrodesis of the knee and the removal of the projecting condyles will allow a more adequate, satisfactory fitting of prosthesis. Following this surgery, a completely standard prosthesis, as far as the socket is concerned, can be fitted and will function quite well. This is the contemplated plan for the patients in this group, since none of them has yet reached this age group.

Summary

A rather specific type of congential anomaly of the lower extremity has been presented. Because of the number of cases seen in the clinic at Newington during the past five years, it would seem that this is an entity worthy of discussion. The presentation has suggested one way of approaching the problem, and the basic treatment has been broken down into three groups according to the age of the patient as follows:

Toddler

a. Fit entire limb to modified prosthesis
b. Fit early—as soon as child stands or reaches walking age

Pre-School to Adolescence

a. Ablate foot to allow more conventional AK fitting
b. Fit two segments as one. (Knee joint on affected side may be low)

Adult

a. Arthrodesis knee to give single lever stump
b. Fit in conventional or suction socket prosthesis

REFERENCES

1. Birch-Jensen, A.: Congenital defects of the upper extremity. Copenhagen, Munksgaard, 1949.

2. Aitken, G. T. and Frantz, C. H.: Lecture course on juvenile amputees. American Academy of Orthopaedic Surgeons, January 1960.

3. Aitken, G. T. and Frantz, C. H.: The juvenile amputee. J. Bone and Joint Surgery, 35A: 659, 1953.

> *As men learn the lesson of science, of the value of unbiased and diligent search for the truth, may we not hope that scientific investigation may displace war as a method of solving our great human problems.*
>
> Arthur H. Compton, *American Association For The Advancement Of Science Bulletin.*

The Uses Of Hip Joint Arthrography

ALBERT S. ATWOOD, M.D.
Torrington

Hip joint arthrography is a valuable diagnostic procedure in the clinical appraisal of selected disorders of the hip joint. Roentgenographic examination of hip joint in early infancy and childhood can be incomplete and misleading because of a large proportion of cartilage to calcified bone. The use of a contrast medium within the hip joint will outline the anatomical relationships of the acetabulum, femoral head, and joint capsule.

Opaque arthrography of the hip joint has been done at the Newington Hospital for Chippled Children since 1948. Heublein, Greene and Conforti reported on the early use of opaque arthrography at Newington in 1952.[1] Their paper presents a review of the literature and an excellent description of the normal Roentgenographic anatomy.

Technique

The method of performing hip joint arthrography at the Newington Hospital is as follows: General anesthesia is necessary since the subjects are all young children and local anesthesia will not allow a satisfactory examination. Diodrast solutions, 17.5 per cent (diodrast diluted to ½ strength with normal saline) is the contrast medium used. Both hips were injected even in unilateral disease in an effort to get a good control study. The groin areas are prepared and draped as for operative technique. The anterior route of injection is selected, one centimeter distal to the mid portion of Poupart's ligament and one centimeter lateral to the pulsation of the femoral artery. A short beveled #20 spinal needle is inserted at this point into the hip joint. Great care must be taken to assure oneself that the actual joint cavity is entered. Frequently one may feel the needle entering the cartilaginous portion of the femoral head or neck. When the actual joint cavity contains the tip of the needle, saline may be freely introduced and withdrawn. At this time two to three cc's of 17.5 per cent diodrast solution is injected into the hip. This amount varies with the size of the patient. After the dye is injected into the hip joint, the leg is rotated slightly in order to distribute evenly the dye throughout the intracapsular space. X-rays are then taken. These X-rays should reveal the cartilaginous portion of the femoral head and the outlines of the true acetabulum and capsule. (Figure I) In cases of congenital dislocation of the hip, reduction can then be done immediately. Diodrast is absorbed rather rapidly both in the joint itself and from any extravasation in the soft tissues outside the joint. The absorption is usually complete in 20 to 25

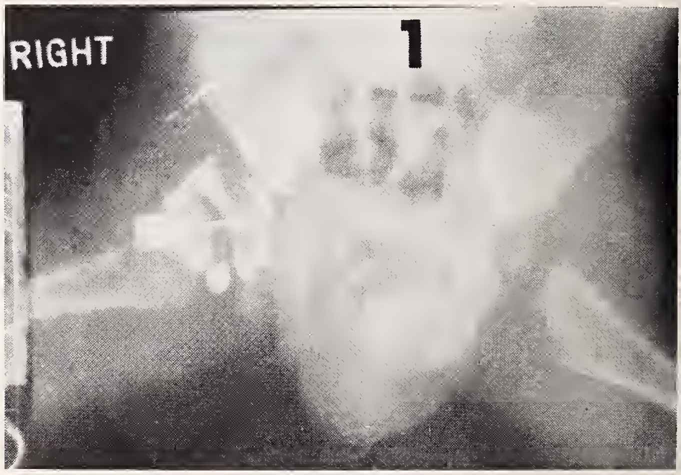

FIGURE I

M.B. Age 5 mos. The left hip without the contrast media shows the extent of normal ossification of the femoral head and acetabulum. The right hip utilizing a contrast media shows the amount, shape and position of the cartilageous portions of the hip joint. The normal appearing cartilagenous femoral head is well seated in the acetabulum.

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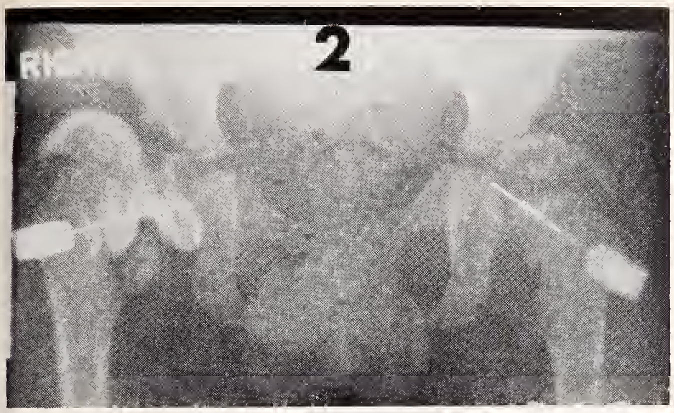

FIGURE II

G.B. Age 8 mos. The right hip shows a complete dislocation of the hip with the so-called hour-glass capsule. On the left side, a well placed femoral head is visualized. The cartilagenous cap or limbus is well placed over the femoral head. The bony acetabular roof shows an increased activity or marked upward slope in contrast to the actual cartilagenous roof.

minutes after the injection. In our use of diodrast solution as the contrast medium, we have seen no significant reaction or irritation of the synovial membrane.

Uses

Legg-Calve-Perthes Disease: A number of children with Legg-Calve-Perthes disease were studied. An attempt was made to correlate the appearance, shape and size of the cartilaginous portion of the femoral head in relation to the ossified portion of the femoral head. The routine roentgenographic appearance of a flattened osseous nucleus was found to bear no relationship to the shape or configuration of the cartilaginous femoral head.

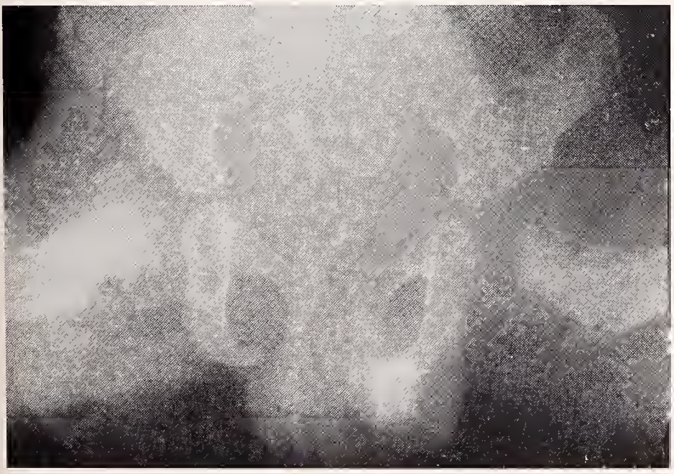

FIGURE III

G.B. Age 8 mos. Arthrogram after reduction of the hip shows the femoral head in each hip joint to be faintly outlined by the contrast media. In this case the exact placement of the femoral head in relationship to the acetabulum can be accurately determined.

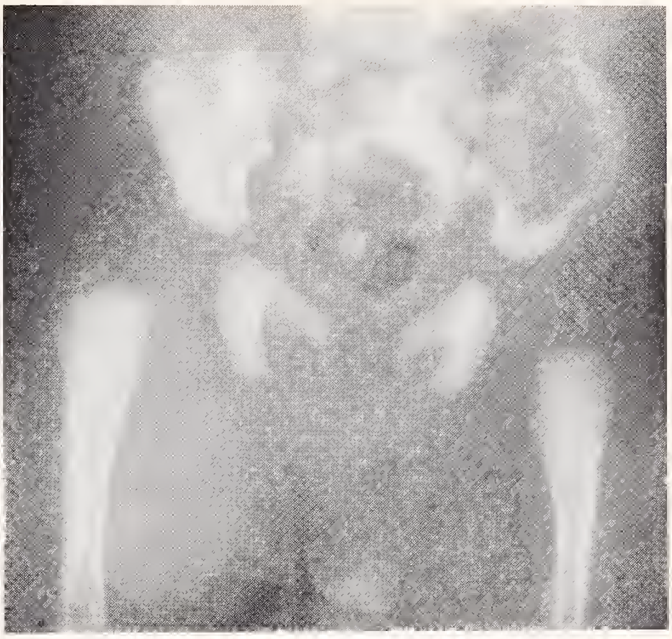

FIGURE IV

R.L. Age 1 day. A newborn infant sustained trauma at birth—a definite "clunk" was felt during a difficult breech extraction delivery. Limited action in right hip. X-rays show the bony landmarks of the greater trochanter on the right femur to be displaced laterally.

Congenital Dislocation of the Hip: Numerous cases of congenital dislocation of the hip were studied. The contrast medium was found to give a very accurate portrayal of the anatomical relationships of the acetabulum, femoral head and joint capsule. (Figue II) The portrayal of the so-called "hour glass" constructure of the capsule can also be seen quite vividly. However, this was found to be of no particular significance in determining whether or not an open reduction must be done. The most valuable use of this procedure was in

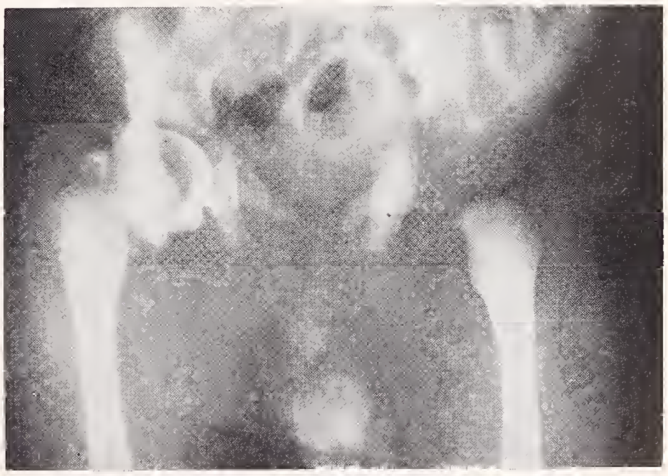

FIGURE V

R.L. Age 15 days. Arthrogram shows a well seated femoral head in the acetabulum. Callus is already demonstrable about the fracture of the base of the femoral neck. A varus deformity of the femoral neck is apparent.

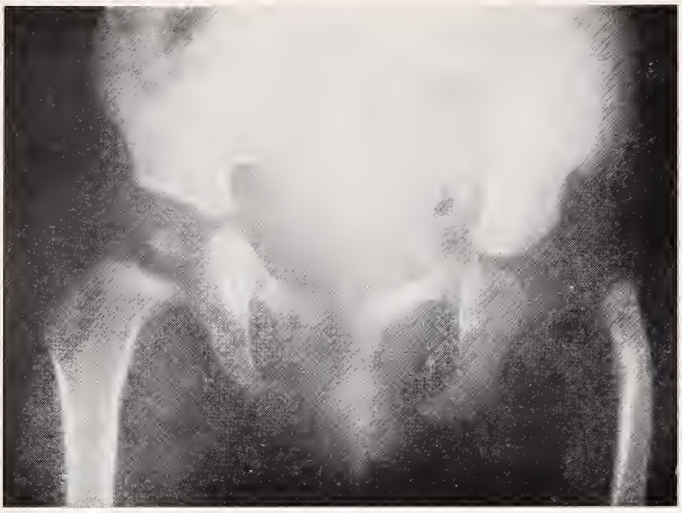

FIGURE VI

R.S. Age 10 months. Congenital anomalies of the left lower extremity. Routine x-ray shows no apparent head or neck of the femur.

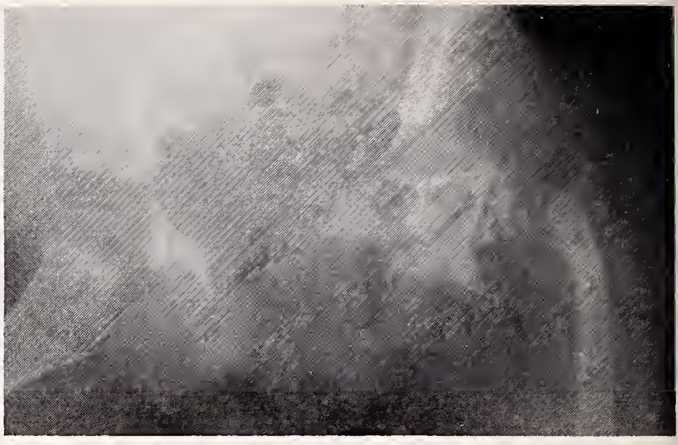

FIGURE VII

R.S. Age 10 months. Arthrogram shows the femoral head to be well positioned in the acetabulum with a varus relationship to the femur. There is an obvious osseous defect at the base of the femoral neck and greater trochanter.

ascertaining the correct relationship of the femoral head to the acetabulum. The proper seating of the femoral head within the cartilaginous acetabulum can be shown quite graphically. (Figure III) On occasion it can be extremely difficult to be sure of the postreduction positioning of the hip after reduction and immobilization of the infant in a plaster of paris hip spica. Accurate information can be obtained by cutting a window in the cast and using contrast medium within the hip joint. This can be an extremely valuable procedure.

Birth Trauma: Early diagnosis of birth trauma about the hip joint can be established using this procedure. (Figure IV) represents birth trauma to the right hip with certain radiographic signs indicating a lateral displacement of the greater trochanter of the hip and questionable dislocation. Figure V shows the femoral head to be well seated within a normal acetabulum and the pathology about the greater trochanter.

Congenital Anomalies: Certain congenital anomalies can be evaluated more accurately and treatment outlined. Figure VI reveals congenital anomaly of the left lower extremity with questionable absence of the femoral head, neck, and greater trochanter. Figure VII reveals the femoral head and neck to be within the cartilaginous acetabulum and the major pathology in the region of the lower portion of the neck and greater trochanteric region.

REFERENCES

1. Heublein, G. W., Greene, G. S., and Conforti, V. P.: Hip joint arthrography. American Journal of Roentgenology, Radium Therapy, and Nuclear Medicine, 68: 736-748, Nov. 1952.

The Newington Experience With A Child Amputee

John C. Allen, m.d.
E. E. Van Derwerker, m.d.
Hartford

At the Newington Hospital for Crippled Children during the past five years between April 1956 and April 1961, we have had an active child amputee clinic. This service has functioned on the philosophy of total treatment, the consideration of the child as "a whole" and with the principles of rehabilitation utilizing the team approach. This has been a service designed to make available suitable prosthetics for the Connecticut residents and such others, essentially in New England, as may have had the need for it. The figures of this experience are included in this report.

The clinic team in this instance consists of two physicians, an orthopedist, and a physiatrist, as well as an occupational therapist, a physical therapist, a prosthesist, a nurse coordinator, a social worker, and a secretary as regular members of the group. Available also, as necessary, are the services of a psychologist and a psychiatrist primarily interested in children's problems.

We have definitely felt that the juvenile amputee, and the patient with a congenitally anomalous limb can be habilitated and rehabilitated through the following principles.

Early Referral

Ideally the sooner a youngster comes under definitive care for purposes of training in preparation for a prosthesis, procurement of a prosthesis, and training in its use, the better this patient will use a prosthesis. This has been shown very conclusively in our series, as well as by others working in this area. We would like to see such a youngster, if possible, as soon after birth as it can be arranged, certainly within the first few weeks after delivery. This has major advantage for planning purposes, as well as for counselling and the support emotionally which is so often necessary for young parents.

The Team Approach

Our experience at Newington in which the patient is seen by the entire team with consideration of the entire problem of the whole child has allowed a much greater degree of success and effective usage of the prosthesis than would otherwise have been possible. This is certainly emphatically clear where there have been multiple problems presented in that it has allowed for a pooling of thoughts, discussion of the problems presented, and the coordination of the program between the clinic, the home, the school, the social activities, and in conjunction with the family physician and other interested, or concerned, authority.

Follow-up

Close follow-up is an absolute must for the success of an amputee program in order to insure proper fitting of a properly prescribed prosthesis and the necessary training in the use of the equipment. It is our opinion that this training is best done under the supervision of the team which is responsible for this patient and not by an independent authority or agency done at a distance, or done on occasion, but provided and accomplished on a concentrated schedule. Adequate follow-up allows

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DR. E. E. VAN DERWERKER is Assistant Attending, Hartford Hospital, Hartford; Associate Visiting, Newington Hospital For Crippled Children, Newington; Assistant Attending, Newington Veteran's Administration Hospital, Newington; Consultant, Orthopedic Surgery, Connecticut State Prison.

for such necessary equipment change, proper lengthening of the prosthesis, and the maintenance of a proper state of repair which takes much closer supervision in a child than it does in an adult because of the extremely strenuous use, as well as the growth factor seen in youngsters.

Other Considerations

An imaginative team is a necessity because of the many variations in problems that are seen which are anything but "standard." Preservation of tissue in the selective conversion for optimum function and fitting is quite important in that very frequently a congenital anomalie, particularly of the lower extremity, may be more effectively and comfortably handled as an actual amputation. The final category in the classification listed below includes the heading "Anomalies of Lower Extremity Treated As Amputees." These six instances may eventually be converted from a congenital anomaly to some form of amputation for purposes of more effective usage through the ablation of a vestigial foot, or portion of the lower extremity. In the group of congenital lower extremity amputations given, there are twelve below knee amputations and five Symes amputations. Of these seventeen, several are instances of converted lower extremity anomalies which had portions of the lower extremity only. Through imaginative surgery and planning by the team, these have become stable below knee stumps. Some with end bearing, some using a conventional below knee socket, thus making the prosthetic equipment economically more feasible and consistent, and adequate fitting much more possible and the danger of soft tissue breakdown minimized, together with easier more effective usage by the patient. Important in this problem is the need to preserve as much usable tissue as possible.

Our experience at Newington with the upper extremity amputee has shown that most patients prefer the utility hook as an end mechanism for their prosthesis for general activities and use, prefering the functional hand only for social contacts and social activities. This seems to be predicated on the problem of maintenance of the hand mechanism which is complicated, also predicated upon the easy damaging, or discoloration of the cosmetic glove, which must be used with the hand prosthesis, and also on the weight differential between the hook and the hand. These patients prefer the lighter end mechanism and one which continues to be serviceable without interruption for repair activities.

The activities of this clinic have been closely coordinated and a part of the national research program known as the Committee On Prosthetic Research And Development of the National Academy of Science, National Research Council.

Included below is the listing of the experience during the five year interval named.

NEWINGTON HOSPITAL FOR CRIPPLED CHILDREN
Newington, Conn. MOhawk 6-2461

THE NEWINGTON EXPERIENCE WITH THE CHILD AMPUTEE
April 1956 — April 1961

Traumatic Amputation		
Upper Extremity		
Shoulder Disarticulation	1	
Above Elbow	2	
Below Elbow	2	5
Lower Extremity		
Above Knee	4	
Below Knee	12	
Symes	1	
Partial Foot	3	20
Congenital Amputation		
Upper Extremity		
Shoulder Disarticulation	2	
Above Elbow	2	
Elbow Disarticulation	1	
Below Elbow (Rt. 8; Lt. 19)	27	
Partial Hand (Rt. 3; Lt. 5)	8	40
Lower Extremity		
Above Knee	2	
Knee Disarticulation	1	
Below Knee (Rt. 7; Lt. 5)	12	
Symes	5	
Partial Foot	1	21
Amputation for Tumor		
Lower Extremity		
Hip Disarticulation (Osteogenic sarcoma)	1	
Above Knee (Osteogenic sarcoma)	1	
Below Knee (Chondrosarcoma)	1	3
Anomalies of Lower Extremity Treated as Amputees		
Congenital Short Femur	3	
Agenesis Distal to Knee	3	6
	TOTALS	95
	(Patients	78) *

* Difference in figures is explained by the fact that several have had more than one amputation problem.

Treatment Of Fractures And Dislocations Of The Cervical Spine

Wayne O. Southwick, m.d.
New Haven

First Aid

First aid for acute injuries is becoming more and more important, as trauma emerges as the greatest threat to the nation's health. Proper first aid can often prevent shock, pain and/or additional injury or death by protection of injured tissues.

Every physician should be prepared to administer first aid, regardless of his specialty. Yet, this obligation is now so frequently passed along to the police, ambulance drivers, etc., that no longer do many physicians feel it their responsibility to offer help at the scene of an accident. It is the out-spoken and common practice of many physicians today to avoid their duties to their fellow men by remaining incognito at such crises, rather than to risk a malpractice suit or to display their ignorance of proper first aid techniques. Surely, the public's opinion of our profession will drop to a new low, with good reason, if we do not change this deplorable attitude.

Perhaps more than in any other situation, a physician who happens to be at the scene of a cervical spine injury can, with his own hands, prevent needless death or quadraplegia simply by preventing further injury. The key to initial treatment is a proper recognition of the nature of the injury at the scene of the accident. By a careful, but rapid examination, of the injured individual and (if he is conscious), by asking a few questions about pain, tenderness, paresthesia, anesthesia, paralysis, plus inspection and palpation of marks on the head and neck, one can determine with considerable accuracy, the probable diagnosis.

Once a fracture is diagnosed or suspected, the neck must be immediately protected, while the patient is given other necessary first aid and transported to a hospital well equipped to deal with such injuries. The patient must be supported with the head in neutral position,* (and with the jaw held forward, if he is unconscious so as to insure an open airway).

Consideration of the fracture mechanism and information from witnesses at the scene may make it possible to determine whether the injury is due to flexion, extension, rotation or a combination of these.[4] It is not vitally important to know these details until definitive treatment is to be given, but first hand knowledge of the mechanism can be of great value at that time. The single most important thing to do initially, is to *prevent any movement of the head in relation to the body during transportation,* from the accident scene to the stretcher, to the ambulance, to the emergency room, to the X-ray table, etc. This may be accomplished with pillows, sand bags, a cervical brace, or head traction. However, if none of these are effective or available, it may well be that the hands of the physician, maintaining the head in neutral position, constitute the safest method of immobilization. This is particularly true, if there is an associated head injury, as the patient may thrash about and injure himself. The subject of resuscitation and shock, are beyond the scope of this paper but are exceptionally well covered in an inexpensive booklet titled "An Outline of the Treatment of Fractures and Soft Tissue Injuries," published by the American College of Surgeons.[1]

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* Neutral position means the head and neck is neither rotated, flexed or extended, with respect to the thorax, and is best maintained with light but firm traction in the cephalad direction.

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Because of the possible production of quadriplegia, many surgeons have avoided direct surgical treatment of cervical spine injuries, with the exception of an occasional decompression laminectomy. This fear-and-do-nothing attitude is no longer justified because we know that surgery can offer: (1) less permanent deformity, (2) less morbidity, (3) lessened necessity for external splinting, (4) earlier mobilization, and (5) increased protection of the spinal cord, its blood supply and associated structures. The purpose of this paper is to describe some of the cervical spine injuries in order to emphasize the value of early operative stabilization.

Early Treatment, Traction, And Turning Beds

Since the cervical spine has the important task of protecting the structures noted above, the goal of treatment is to achieve, as soon as possible, mechanical control and stability. The examination of the patient with a suspected injury, has already been mentioned. These patients with obvious neurological deficits can be initially treated by placing the patient in skull traction of fifteen to twenty pounds, prior to radiographic examination, to allow even more complete control of the head, neck and thorax. Anteroposterior, lateral and oblique roentgenograms can and must be made without movement.

Although there are theoretically many possible mechanisms of cervical spine injury,[12] the common types are flexion, extension, rotation, and vertical compression. The flexion injury usually produces a temporary subluxation or dislocation without apparent bony change in the common and less severe cases, but it may produce fragmentation of the anterior body, or anterior subluxation of one or both facettes of the upper vertebra, upon the next lower vertebra, usually at the level of C5-6, C6-7, or C4-5. Extension injuries usually fragment the lateral masses or interfacette areas of the vertebrae and they may be confused with flexion injuries. This is because the vertebra above often comes to rest slightly anterior to the next lower vertebra. It is also possible for an extension injury to produce cord severence without any bony abnormality detectable on X-ray.[3]

Turning beds should be used when they are available, particularly for a patient in skull traction, as there is much less nursing inconvenience and it makes possible the frequent turning of the patient without pain or trauma, and prevents pressure necrosis of the skin over bony prominences.

The Anterolateral Flexion Injury

The importance of the oblique view should be stressed in the study of anterolateral flexion injuries as only one facette may be dislocated and it is easily missed on lateral or anteroposterior films. This type of injury has been difficult to reduce by skull traction, and it is often associated with pain in one cervical nerve root.

In the opinion of the author, this injury is best treated by open reduction under local anesthesia without laminectomy, using skull traction and if necessary, local resection of portions of the facettes to decompress the nerve root and to allow the vertebrae to return to their normal position. After reduction is accomplished, wire fixation and bone grafting by the Rogers method[8, 9] will provide a firm internal fixation which will permit fusion of the injured vertebrae and allow the patient sufficient stability to discard external support.

Flexion Fractures

With a flexion injury severe enough to produce facette dislocations, compression fractures and/or cord or nerve root injury, the interspinous ligament and ligamenta flava between the injured segments have invariably been ruptured. From twenty-five to forty pounds of straight traction for two or three weeks, may be needed to effect reduction. Since any ligament, once torn, is liable to stretch or tear more easily after healing by scar tissue, open reduction under direct vision and wire fixation of the injured segment is considered by most authors the most rational procedure, rather than use of prolonged traction alone.

Extension, Hyperextension Or Vertical Injuries

In this group of injuries the superior vertebra may be dislocated posteriorly on an inferior one. On occasions, if the lateral masses of the vertebrae are fragmented, the superior vertebra may come to rest slightly anterior to the lower one and simulate a flexion injury. As a rule these displacements are easily reduced by straight traction. For extension injuries, internal fixation usually requires a bone grafting of the laminae and/or facettes of two vertebrae below the injury in addition to the injured segment so as to prevent recurrent hyperextension.[6, 7]

Fractures Of The Odontoid Process

A fracture of the odontoid process is notorious for its failure to heal by bony union and for its high rate of neurological morbidity. Therefore, it is almost universally agreed that in this type of injury early fusion is the procedure of choice. In extension injuries fusion of C1, C2, and C3 is necessary to control posterior subluxation of the fracture and the bone grafts.[4] In flexion injuries of the odontoid process a wire loop and grafting of C1 to C2 is usually sufficient, although on severe injuries it may be necessary to fuse C2 to the base of the skull, by a method which has been previously described.[7]

The difficulties involved with odontoid process fractures are illustrated by the following case.

Case I

E.Z., a 47 year old white female housewife complained of chronic pain in the back of the right ear and in the upper cervical spine region, which was becoming progressively more severe. Her physician made an initial diagnosis of myositis and she was given antibiotics, with no improvement. She was referred to an otolaryngologist, who found a bony hard mass in the posterior nasopharyngeal region. He obtained roentgenograms which revealed an old fracture dislocation (posterior) of the odontoid process and referred the patient to an orthopaedic surgeon.

On further questioning she recalled that she injured her neck during adolescence doing a somersault; the pain was so severe that she remained in bed for over two weeks. Ever since that time, she had frequent occipital headaches and "almost blacked out" whenever her head was excessively flexed or extended. She was unable to lift her head when in the prone or supine position without turning on her side, so that the lateral portions of her neck supported her head. Because of these symptoms she had become almost completely disabled and very much depressed.

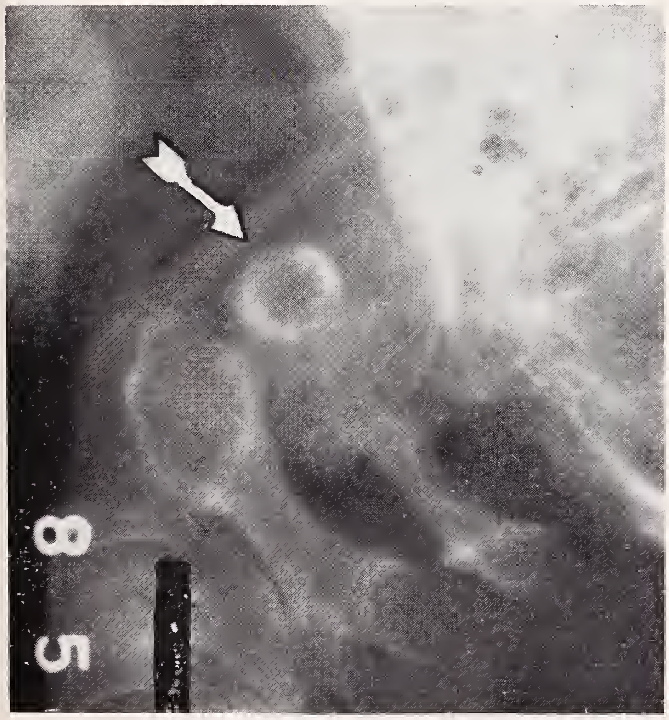

Figure I-A

Illustrates the posterior dislocation of the odontoid process with neck extension. The patient's pain was probably due to traction or compression of nerve roots and the fainting spells due to the occlusion of the vertebral arteries. (Courtesy of Dr. John D. Haugh.)

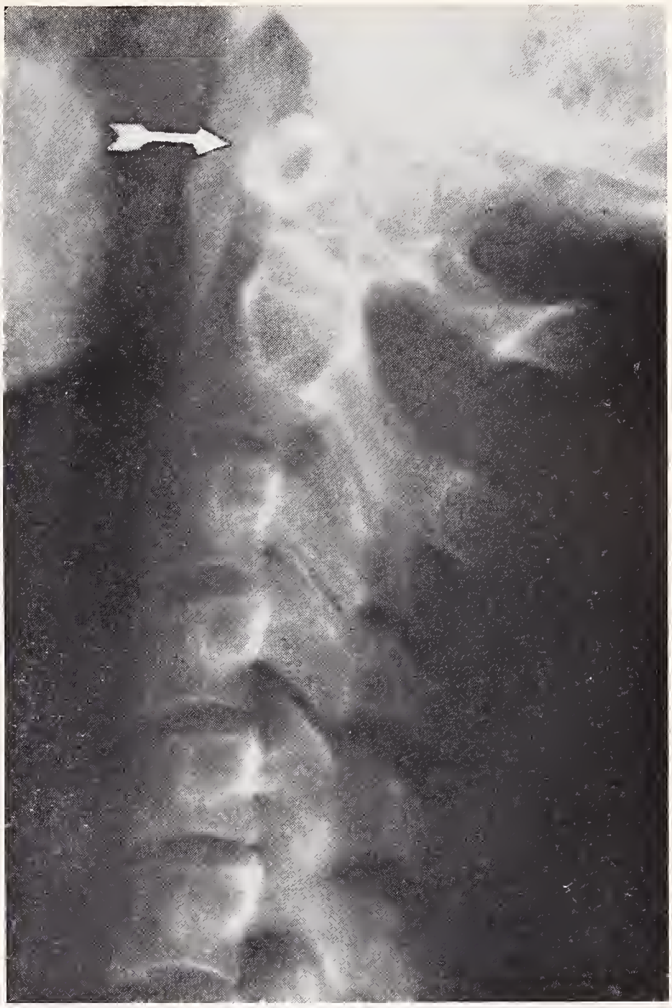

Figure I-B

The arrow indicates the anterior dislocation of the odontoid process, with flexion.

Figures I-A and I-B illustrate the extremely abnormal mobility of C1 on C-2. It is not difficult to imagine how this motion could compress the vertebral arteries and the spinal cord. A fusion between C1 and C2 was performed by Dr. John D. Haugh of Hartford and she has been completely free of symptoms for the first time in over 30 years.

The Problem Of Fractures Combined With Spinal Cord Injury

When there is spinal cord damage and when the patient's condition permits, early decompression of the cord is generally accepted as the treatment of choice,[5, 11] and usually is best performed by a neurosurgeon. There is a certain general attitude of hopelessness regarding laminectomies after severe cervical spine injuries, but one thing is obvious—if continuing pressure on the cervical cord after an acute injury plays any part in the neurological picture, and if the cord has any chance of recovery, the sooner the pressure on the cord is relieved, the better. Following laminectomy of an

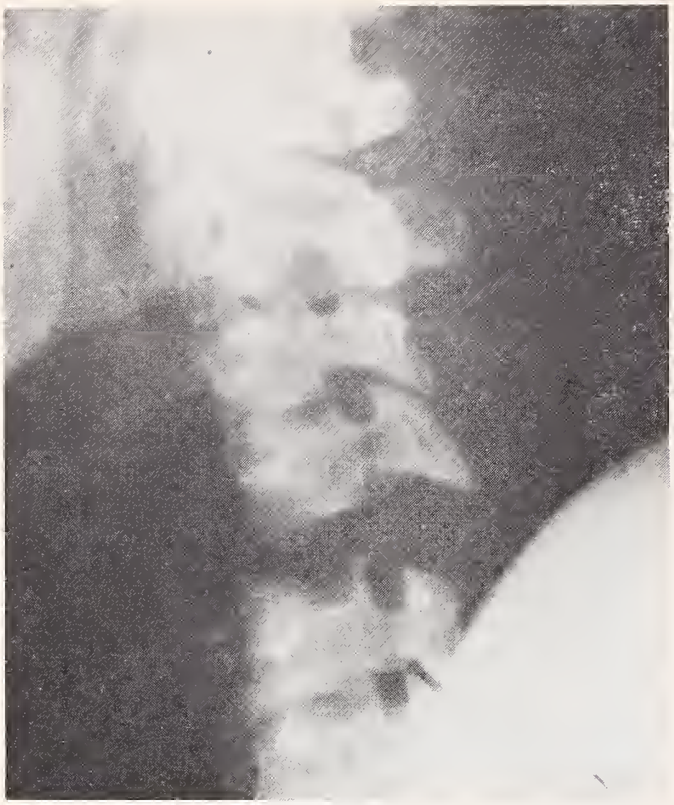

Figure II

After complete dislocation and decompression laminectomy, this patient's spine had become completely unstable due to shearing of all ligamentus structures. With only ten pounds of traction the spine separated almost the width of one entire vertebra. This patient was in agony with every motion, probably due to traction on cervical nerve roots.

unstable cervical spine, one faces the problem of further instability, with its attended cord irritation and edema. Internal stabilization is far more firm and complete than stabilization by external methods or traction. If further movement of the injured cord contributes to poor results, then better protection and immobilization by internal fixation is certainly justified. This may be accomplished by an orthopaedic surgeon using one of the currently accepted techniques of internal fixation.[1,7,8] Recently two methods of fixation and grafting have been devised[7] for those cases following laminectomy —one for flexion injuries of the neck and the other for flexion or extension and vertical injuries of the neck. Both early internal stabilization of the neck and laminectomy as well as open reduction can be accomplished at one operation. These methods primarily consist of wiring the facette joints to the remaining spinous processes or to bone grafts along the facette joints. (A third method of anterior interbody fusion also has a limited place in cervical spine fracture dislocations.) [1,7]

Because of the many complexities, it is essential in the interest of optimum patient care for the orthopaedic surgeon and the neurosurgeon to care for such individuals as a team. Undoubtedly, this cooperative method as practiced in our institution has led to improved results.

The Problem Of Stability

There is no doubt that following traction, casts, or even no treatment, many cervical spine injuries without cord damage will heal sufficiently well to allow resumption of normal activities. However, where the tolerance for subluxation is so small, and where it is known that another injury may mean quadriplegia or death, the physician and patient alike are never assured that the cervical spine injury is not going to recur. Several instances of subsequent aggravated damage have been reported.[6,10] Traction alone following a major injury and decompression is not always successful in achieving stability because the weight necessary for stability may separate the vertebrae. As an example to illustrate some of the problems of prolonged traction without early stabilization, the following case is reported. Much misery could have been avoided and possibly a better recovery of nerve root damage could have been obtained by early internal fixation of the spine.

Case II

N.P., a 27 year old white male, dove into shallow water and suffered a severe flexion injury of the neck on the chest with an anterior dislocation of C4

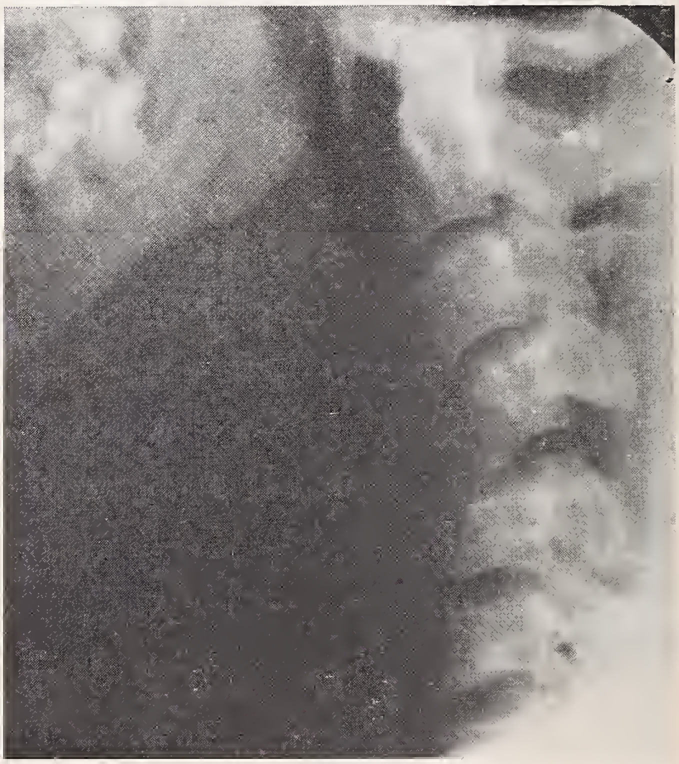

Figure III

Reduction of traction produced more pain, probably due to nerve root compression.

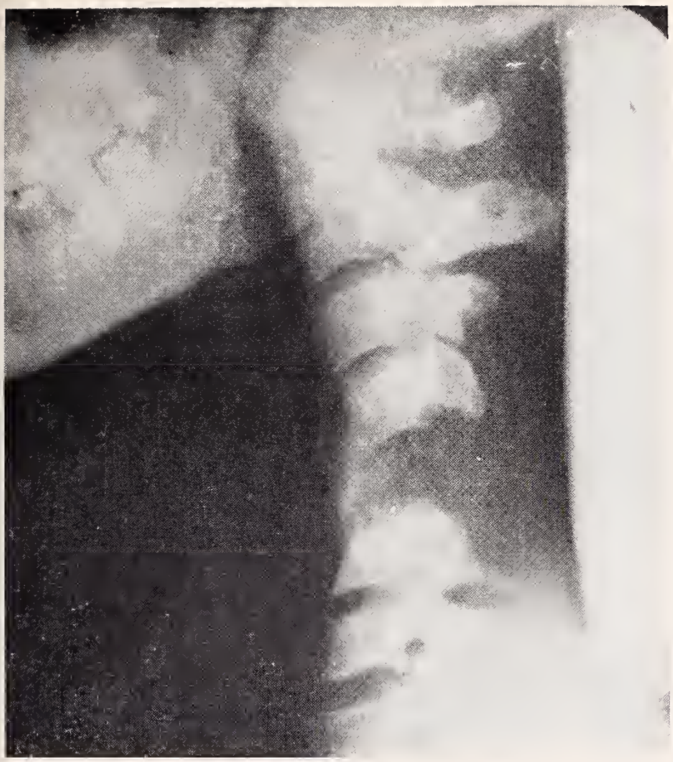

Figure IV

After six months, there was an attempt at bridging anteriorly, but no stability was achieved. Traction sufficient to support the head prevented fusion by distraction.

on C_5, which resulted in an immediate and complete loss of spinal cord function at this level. On admission at the hospital, he was placed in skeletal traction of fifteen pounds and treated for spinal shock. Two days later a tracheotomy was performed and seven days after admission he was sufficiently stabilized to allow a decompression laminectomy. At operation the cord was obviously crushed and edematous, and the neurosurgeon properly carried out a wide decompression laminectomy. Skeletal traction was reduced to ten pounds when distraction was noted, but the distraction remained. Further reduction of weight was not possible as this was the minimum amount that would support the head. Traction was maintained for many weeks hoping for spontaneous stabilization. However, the patient complained of agonizing and constant shoulder pain aggravated by the slightest movements necessary for nursing care. Pin track infections developed at the skull tong sites and the patient became severely depressed, apathetic and lost interest in survival. After six months of traction, a facette fusion was carried out. One week later the patient felt dramatically improved, was sitting up in a wheel chair in ten days, and for the first time since his injury was free of nerve root pain. His postoperative recovery was uneventful and he has led a comfortable, albeit quadriplegic, wheel chair existence since.

Not all injuries need fusion and each individual case must be considered separately. The patient's age, vocation, habits, etc., plus the magnitude and the location of the injury, estimation of stability by extension and flexion X-rays, after a six month period of external protection, may give sufficient evidence of stability to assure safe return to normal activities.

Summary And Conclusions

Dislocations fractures, and fracture-dislocations of the cervical spine frequently result in mechanical instability between two or more vertebrae. Since the spinal cord, vertebral arteries and associated sympathetic nerves derive support and protection from the cervical spine, loss of spine stability threatens by compression or transverse shearing to produce irreversable damage to these vital structures. The importance of adequate fixation of these supporting structures has been emphasized. The importance of proper first aid, accurate diagnosis and early adequate definitive treatment of fracture-dislocations of the cervical spine have been discussed. One case showing the late complications of traction and laminectomy alone and one case showing complications in the absence of treatment have been presented.

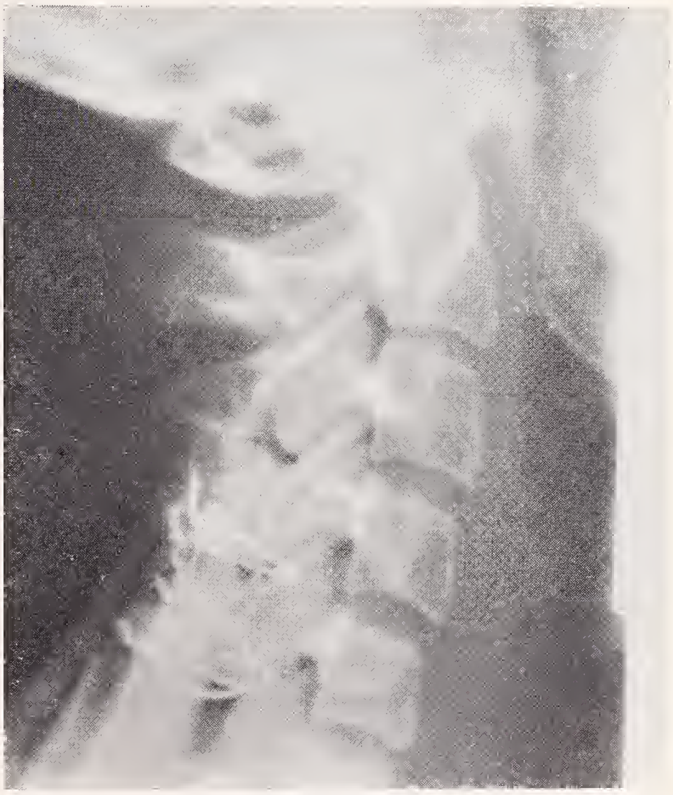

Figure V

Facette fusion using autogenous tibial grafts. This patient probably could have been spared much pain if an internal fixation procedure could have been performed at an earlier date.

REFERENCES

1. American College of Surgeons: The management of fractures and soft tissue injuries. W. B. Saunders Co., Philadelphia, 1961.

2. Bailey, R. W. and Badgley, C. E.: The role of anterior interbody fusion in traumatic fracture dislocations following previous cervical laminectomy. J. Bone and Joint Surg., 41-A: 768, 1959.

3. Barnes, R.: Paraplegia in cervical spine injuries. J. Bone and Joint Surg., 30-B: 239, 1948.

4. Forsyth, H. F., Alexander, E. D., Jr., Davis, C., Jr., and Underal, R.: The advantages of early spine fusion in the treatment of fracture dislocations of the cervical spine. J. Bone and Joint Surg., 41-A: 17, 1959.

5. Kahn, E. A.: On spinal cord injuries. J. Bone and Joint Surg., 41-A: 6, 1959.

6. Robinson, R. A. and Southwick, W. O.: Indications and techniques for early stabilization of the neck in some fracture dislocations of the cervical spine. So. Med. J., 53: 565-579, 1960.

7. Robinson, R. A. and Southwick, W. O.: Surgical approaches to the cervical spine. Amer. Academy of Orth. Surg., Instructional Course Lectures, 17: 299-330, 1960, C. V. Mosby Co., St. Louis.

8. Rogers, W. A.: Treatment of fracture dislocation of the cervical spine. J. Bone and Joint Surg., 24: 245, 1942.

9. Rogers, W. A.: Fractures and dislocation of the cervical spine: J. Bone and Joint Surg., 39-A: 341, 1957.

10. Southwick, W. O. and Robinson, R. A.: Recent advances in surgery of the cervical spine. Surg. Clin. of No. Amer., 41: 1661, 1961.

11. White, J. D.: Injuries to the cervical cord. J. Bone and Joint Surg., 41-A: 11, 1959.

12. Whitley, J. E. and Forsyth, F. H.: The classification of cervical spine injurics. Amer. J. of Roentgen., 4: 633, 1960.

That singular method of reflection indulged in by the Pythagoreans and the followers of Platonism (a method pursued in modern times by Descartes, Fichte, Krause, Hegel and recently although only in part by Bergson) which consists of exploring one's own soul to discover in it the laws of the universe and the solution of life's great secrets now inspires only feelings of aversion and compassion. Compassion because of the gifts dissipated pursuing Chimeras; aversion because of the time and work so pitifully lost.

Ramon Y. Cahal, *Precepts And Counsels On Scientific Investigations*

Office Mechanizations And Increased Wrist Dysfunctions

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Introduction

The technological advances in small and large offices of both industry and utilities, during the past two decades, has increased the degree of rapid and repetitive movements of the hands and forearms. As a result of repetitive action certain clinical orthopaedic syndromes heretofore recognized have now increased greatly in incidence. It is because of the increasing frequency of these lesions that it seems desirable to call attention to them.

It is beyond the scope of this presentation to enumerate all the various types and locations of dysfunctions of the hand and wrist, which can be associated with the trauma of repetitive motion. The three most common syndromes encountered in this study will be evaluated; namely (1) deQuervain's Disease, (2) Carpal Tunnel Syndrome, (3) Radio-humeral bursitis. The areas representing the source of the majority of these cases are:

1. The radial styloid area at the wrist.
2. The carpal tunnel area of the palmar surface of the hand and wrist.
3. The radio-humeral area at the elbow.

The disabilities at these sites may be both orthopaedic and neurotrophic in nature.

The hand and forearm movements involved in the production of these disabilities are important in the evaluation of the dysfunctions. The role of specific trauma in the origin of these dysfunctions, may not always be recognized. A single traumatic incident may set up a local inflammatory process in an area. Subsequently, this inflammatory process is aggravated by the continued use of the part. In other cases, the summation of low grade trauma, of repeated motion, directs the attention of the patient to the disability. Repetitive movements which require either a rotatory action of the hands and wrists, as well as, repeated flexion and extension of the hand at the wrist, produced a majority of the cases. The dysfunctions in the area were apparently brought on by an excessive use of the muscles and their tendons, or, because of prolonged use under adverse conditions.

To understand the dysfunctions produced, it is well to recapitulate the primary functions of the hand.

a. To close the fingers and relax them
b. Forceps action of the thumb against the fingers, and vice versa.
c. Rotation of the hand through pronation and supination of the forearm
d. Flexion and extension at the wrist

As Sir Robert Jones has pointed out the proper position of the wrist for functional use is that of moderate dorsiflexion, since in this position the grip of the fingers is best. Moreover, Jones[5] stresses, that in palmar flexion the gripping power of the fingers is diminished. Thus, in hyperextension, the tone of the fiexor muscles of the fingers gives the maximum amount of power per unit of contraction. Three quarters of the contractial power of the fingers is lost, by the time the wrist is moved from moderate extension into full flexion.

That these considerations and precautions are frequently lacking, such as improper height of work tables for those who perform rapid and repetitive

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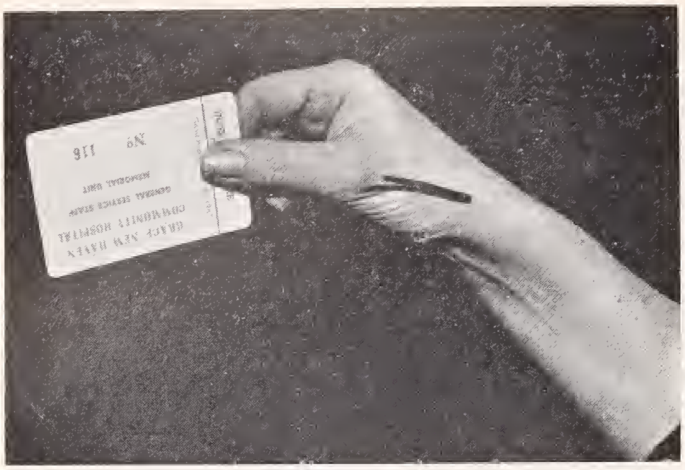


FIGURE I

Actual photograph of movement in production of deQuervain's Disease.

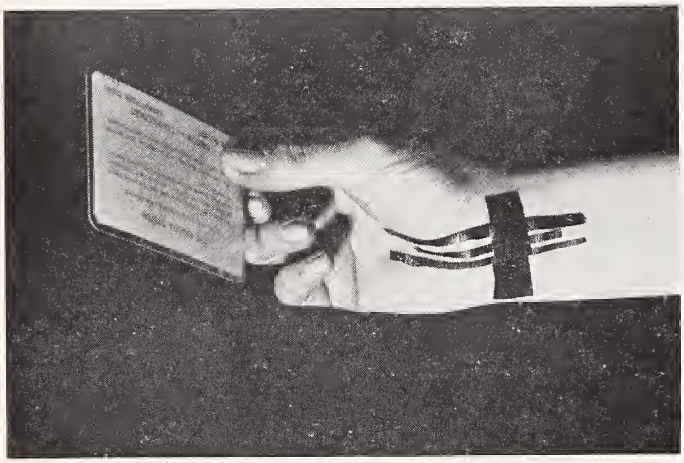


FIGURE II

Photograph made of action leading to carpal tunnel syndrome.

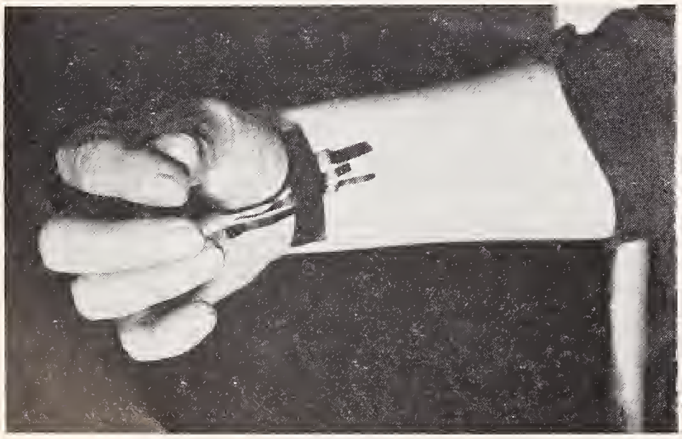


FIGURE III

Another movement leading to carpal tunnel entrapment.

movements is adequately demonstrated in the illustration of some of the movements used in repetitive hand motions. (Figures I, II, III.)

The author reviewed 93 cases from the personal files of his office as a basis for this study covering the three year period from January 1957 to December 1959. Of the 93 cases, 70 were lesions about the wrist and consisted of deQuervain's Disease, Carpal Tunnel Syndrome and Ganglia of the wrist. 23 were lesions of the elbow.

The disabilities covered in this report are believed to have resulted from low grade trauma caused by intricate repetitive movements. Detailed follow up studies of all the patients a year later were unobtainable because many were no longer employed. In 78 per cent of the patients seen with wrist dysfunctions, the onset of the disability proved to be within three to six months from the start of employment, with the right hand involvement being the greater. No seasonal variation of wrist involvement occurred, nor was an increase in these cases noted when a peak work load effort was required.

TABLE I
TYPE AND PERCENTAGE OF DYSFUNCTION AT THE WRIST AND ELBOW

TYPE	NO. CASES	PERCENTAGE
deQuervain's Disease right and left	40	43.0
Radio Humeral Bursitis and Tendonitis	23	24.8
Carpal Tunnel Syndrome	14	15.0
Ganglion	9	9.7
Trigger Thumb	4	4.3
Tenosynovitis Extensor Pollicis Longus Tendon Thumb	3	3.2
	93	100.0

The majority of patients seen were young women as shown in Table 2.

TABLE II
AGE DISTRIBUTION

AGE	PERCENTAGE
17-20	46.0
21-30	30.3
31-40	11.8
41-50	7.5
51-60	4.4

Most of the younger workers were high school graduates, who had never been engaged in gainful labor and were untrained. Such a worker is likely to find the work difficult and fatiguing. In the older age group, the dysfunctions occurred when the employee was changed from a light to a more strenuous type of labor.

Evaluation of these patients were made by means of motion analysis studies during the routine work effort, as well as by means of cineroentgenography. The author personally observed such procedures that led to these disabilities, and studied the repetitive movements of the wrists and arms required by these jobs. These studies convinced the author that prolonged specific movements of the hand and wrist by inexperienced and untrained workers were definite factors in the production of disabling conditions.

The three conditions most commonly found and which will be discussed further are:

1. deQuervain's Disease which is a stenosing tenovaginitis of the sheaths of the extensor pollicis brevis and the abductor longus pollicis muscles.
2. The carpal tunnel syndrome sometimes known as Median Thenar Neuritis, Median Neuritis, Tardy Median Palsy and Median Neuropathy.
3. Radio-Humeral Bursitis, also known as Tendonitis, Lateral Humeral Epicondylitis and Tennis Elbow.

deQuervain's Disease

The most common disturbance of the wrist, in this series, was deQuervain's Disease. This entity was most commonly encountered in employees engaged in the following work categories: card flippers, punchers, phone operators engaged in jack plugging operations, workers engaged in rotatory movements of the wrist and hand, and electronic tape handlers. The type of movement most commonly carried out in this group involved complex rotary movements, utilizing pronation and supination of the hand. Intricate movements of the hand and thumb, were a part of the work effort of this group.

The most common symptom noted in approximately 95 per cent of the cases was aching pain of varying intensity. The pain, which also involved the forearm, or radiated down the thumb, varied according to the severity of the inflammatory reaction. Swelling and tenderness, could often be demonstrated at the radial styloid. The pain in the hand and wrist led to weakness, insecure grip and dropping of objects, limitation of motion and radial deviation.

A positive Finkelstein[4] test, almost pathognomonic of this disease was elicited in 90 per cent of the cases. This test consists of placing the patient's thumb into the palm of his hand with the fingers flexed over it. The examiner then grasps the hand and forces the patient's wrist into ulnar deviation. The test is positive if immediate sharp pain at the radial styloid is elicited. The author believes that the 10 per cent who did not show a positive Finkelstein test had either minimal pain or were hyposensitive to pain.

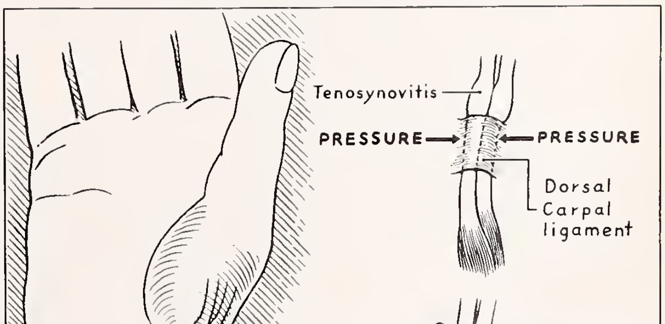
In the younger group of patients, deQuervain's disease is found three to four times more often in women than in men. The condition is characterized by stenosis and tenosynovitis of the common vaginal sheath of the tendons of the abductor pollicis longus and the extensor pollicis brevis. The tendons are contained in the first compartment on the dorsum of the wrist. This compartment is formed by a groove on the styloid process of the radius and is covered by a ligament lined with synovium. The anatomic relationships in this area prevent the tendons of the wrist and digits from slipping over the bony prominences. This action at the wrist is similar to that of a bow string, and tends to minimize friction at the tendinous bend. As the inflammatory process progresses, the stenosis increases.

If surgery for relieving the stenosis is contemplated, it is important to remember that the tendons of the extensor pollicis brevis may lie in a separate osseofibrous canal, and that the abductor pollicis longus tendon may have more than one insertion.

The majority of cases of deQuervain's disease in this series were treated successfully by immobilization; by injections of hydrocortone acetate (15-25 mgs.) into the tendon sheath, and release from the type of work which gave rise to this condition. Cases that were seen early before fibrosis was too far advanced responded well to this therapy. Immobilization was achieved by the application of a Plaster-of-Paris cast, from above the elbow to the proximal phalanx of the thumb. It was maintained for three weeks. Where significant relief was not obtained and symptoms continued in spite of four or five injections of hydrocortone acetate, surgical release was carried out. (Figures IV, V.)

The following procedure was used in surgical release:

Under local or general anaesthesia, a transverse incision of about one and one-half inches is made



Figures IV and V

Site of constricted tendons and method of surgical release in stenosing tenovaginitis.

over the radial styloid. The superficial branch of the radial nerve is identified and gently protected. The stenosed sheath of the abductor pollicis longus and the extensor pollicis brevis is incised in a longitudinal direction. Hydrocortone acetate may be instilled prior to closure. Only the skin needs to be sutured. Splinting for a few days tends to minimize the post operative pain. Recovery and return to duty occurred on an average in three or four weeks. Only a few patients required a longer period of convalescence. As a result of the surgical procedures in our cases complete relief of symptoms were obtained in eight cases, moderate relief in two and no relief in one. When general anaesthesia is used a tourniquet is helpful.

The Carpal Tunnel Syndrome

This condition is believed to be the result of a tenosynovitis with secondary compression of the median nerve within the carpal canal, thereby producing median neuritis.

Woltman[11] in 1941, reported the first case of carpal tunnel syndrome in which section of the transverse carpal ligament led to relief of symptoms. Moreover, it was Woltman's opinion that the median neuritis resulted from compression of the nerve by inflammatory proliferation of the structures in the canal thereby limiting the space between the carpal bones and the anterior annular ligament. In 1950, Phalen[8] and his associates, reported that the median neuritis was often associated with rheumatoid arthritis and tenosynovitis of the flexor tendons of the fingers. These authors noted, that any pathological lesions that would increase the volume of the structures contained within the carpal canal, would tend to compress the nerve.

In many of the reported series, the highest incidence of this syndrome was encountered in the older age groups, i.e., the fourth and fifth decades. Many of the investigators postulated that the condition is far more common than realized.

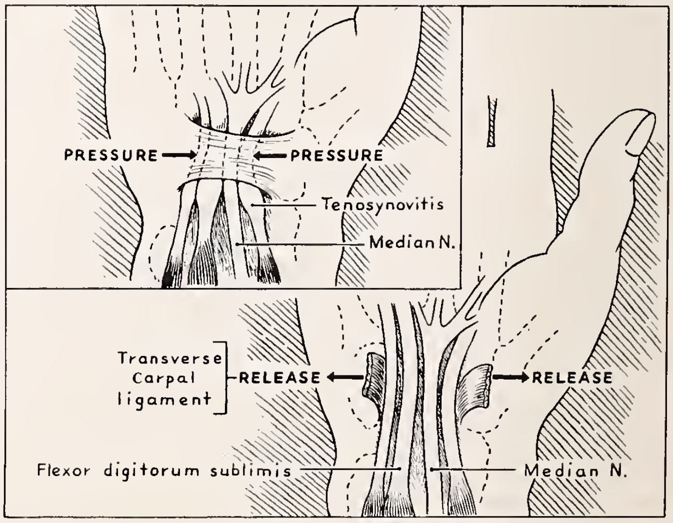
In our series the carpal tunnel syndrome was usually found in patients whose work routine involved forcible flexion and extension of the wrist and fingers. Those engaged in stamping operations, and in punching with lever operated machines were likewise subject to this disability. The movements that necessitated repeated forceful flexion of the fingers, associated with the repeated forceful dorsiflexion and acute volar flexion of the wrist most commonly led to the syndrome, and although the carpal tunnel syndrome was seen in association with trauma due to repetitive movements, it also often followed a single forceful trauma.

The most frequent complaints in carpal tunnel syndrome were, numbness and tingling in the fingers, especially at night. These symptoms were associated with muscular weakness and varying degrees of anaesthesia, involving the thumb, index and middle fingers. Occasionally, anaesthesia was found in all of the fingers.

Examination of patients with this syndrome, showed slight swelling or thickening about the flexor tendons, just proximal to the wrist joint, demonstrable when the base of the hand is viewed from a tangential plane. In the later stages of the condition, atrophy of the thenar eminence was found. The outstanding presenting complaint made in 14 cases in our series, was localized pain at the mid portion of the volar aspect of the wrist. Deep pressure made over the median nerve, at the wrist produced pain. Occasionally, Hoffman-Tinel's[10] sign could be elicited. In making this test tapping or pressing the involved nerve distal to the lesion during the process of regeneration produced a tingling sensation in the peripheral distribution of the nerve. Tinel claims this sensation is caused by stimulation of young growing axis cylinders in the distal nerve fragment. Roentogenographic studies of some of these cases have demonstrated degenerative arthritic changes in the carpal bones, arthritis of other joint areas, as well as in the cervical vertebra articulations. These are incidental findings.

In the management of the carpal tunnel syndrome, it was found 'that if tenderness at the point of entrapment of the median nerve is relieved by injection of a local anaesthetic or hydrocortone acetate, but gives only temporary relief, it can be assumed that the injected substance relieved the reaction produced by the mechanical trauma, but the mechanical cause of irritation will require surgical relief. (Figures VI, VII.)

At operation, compression of the median nerve by the thickened synovial flexor tendon sheaths was



Figures VI and VII

Insert, shows anatomic relation and entrapment. Surgical release for constricted median nerve.

found Phalen,[8] however, has pointed out that often microscopic study of the thickened synovia may reveal little. Depending on the stage and activity of the synovitis the author found that the pathologic material studied following operation showed a wide variation of findings ranging from myxomatous changes with fibrosis and fatty infiltration, to inflammatory fibrous proliferation of edematous synovial sheaths.

The surgical approach may be done under either local or general anaesthesia. Under local, procaine or zylocaine two per cent solution is injected two inches above the wrist, in the proximity of the median nerve, which blocks the palmar branch of this nerve. It is wise to use a tourniquet. The choice of two incisions is available. Either a transverse incision along the wrist crease, or an incision which starts along the proximal half of the thenar crease and runs diagonally across the distal wrist crease. By sharp disection, the palmaris brevis muscle and the transverse carpal ligament are sectioned. The palmaris tendon is cut at its insertion and allowed to retract. The disection is kept to the ulnar side of the nerve, to protect the motor branch. This exposes the restricted nerve, and neurolysis, is readily accomplished. A temporary splint gives relief for a few days.

Surgery gave complete relief for all cases except in those of long standing and where atrophy had been present for years. Of the six cases requiring surgery, three obtained an excellent result, two continued to have a burning pain in the thenar area, and one experienced no relief.

Radio Humeral Bursitis And Tendonitis

Dysfunctions about the elbow, occurring mostly in the fourth and fifth decades, such as, radiohumeral bursitis, and tendonitis and lateral humeral epicondylitis, were found in employees performing operations requiring swinging of the arms, such as wire pullers and cloth stretchers. This movement of pulling the arms out along with a whipping motion, was considered to be the causative factor in most of the cases. The principal complaint of these patients was a discomfort at the elbow which gradually became painful. In later stages, the patient experienced associated weakness of the hand and wrist. This was noted particularly when the patient attempted to pick up an object while the wrist was in acute flexion.

Examination of these patients usually revealed point tenderness near the head of the radius. Lateral epicondylitis of the humerus, easily confused with so called radio-humeral bursitis is due to involvement of a bursa over the epicondyle. The incidence of this dysfunction was found equally among men and women. Treatment of this disability due to bursitis or tendonitis responds well to conservative measures. Local injections of two per cent of procaine or zylocaine gave rapid and complete relief in most of the cases, within seven or ten days. If little or no relief was afforded the patients by injections, immobilization for three to four weeks by means of a cast invariably gave relief. When the diagnosis of lateral humeral epicondylitis is made treatment by injections of procaine along with hydrocortone acetate, offered relief in many of the cases. Three to four injections given at four to five day intervals ordinarily sufficed. When symptoms were severe or of prolonged duration surgery became necessary. Through a small incision the radial collateral ligament is divided, which usually gives early and complete relief. No splints are necessary and early exercises are instituted. Patients can usually return to their jobs in four to five weeks. Only four patients out of 23 required an operation and all were relieved within four weeks.

Differential Diagnosis

A wide variety of disease entities may produce symptoms referable to the wrist.

Stenosing tenosynovitis of deQuervain's type[6] must be differentiated from various types of arthritis and neuritis involving the superficial branch of the radial nerve. It must also be differentiated from sprains, fractures, ganglia, avascular necrosis and degenerative changes in the carpal bones as well as gout. The latter entity must always be kept in mind especially when a male presents himself with pain in the wrist.

Electromyography and measurement of the conduction time in the peripheral portion of the median nerve has been reported by some to be of diagnostic aid before objective neurological signs are observed. The carpal tunnel syndrome has often been seen in association with rheumatoid arthritis, tenosynovitis, contusions, tuberculous synovitis, myxedema and acromegaly. The symptoms associated with the shoulder and hand syndrome, as well as the scalenus syndrome can often confuse the picture. Previously the erroneous diagnosis given to many cases of carpal tunnel syndrome was actually thoracic outlet syndrome functional disturbance and writers cramp.

The symptom complexes of radio-humeral bursitis and tendonitis as well as epicondylitis must be differentiated from acute trauma to the elbow, arthritis of either the elbow joint, or of the cervical vertebrae. Ulnar neuritis must also be excluded.

From the study of patients with wrist and elbow dysfunctions, it becomes apparent that such entities are becoming more common due, mostly, to new types of jobs. With the increase of semi-automatic machine operations, it is probable that an increase of these disabilities will follow. A careful analysis of the case history in light of the work effort is most important in the evaluation of the patient. In the vast majority of cases it was also evident that repeated minor trauma plays a significant role in the production of symptoms in the three syndromes described.

The unusual frequency of the wrist dysfunctions in women deserves mention. Surely, if trauma alone was the most prominent factor in the production of symptoms, a preponderance of males afflicted with these dysfunctions would be encountered. This is not found to be so, either in the literature or in the patients surveyed in this study. A small number of males were seen for the three main conditions described over a three year period.

As Bunnell[1] and other authors have pointed out, it is conceivable that other anatomic and perhaps physiological factors are present in the wrist joint which, when subjected to stress, make the female more susceptible to the production of tenosynovitis. One important factor became evident from this study: that orthopaedic surgeons who survey groups of patients in industrial operations of any type must indeed work in conjunction with the personnel or medical director. When a single work group is found showing a high incidence of hand and forearm disabilities or dysfunctions, the following methods to reduce or alleviate such occurrence should be instituted: (a) The introduction of a training course, or period of indoctrination to demonstrate the best type of work routine to prevent or reduce the over exertion of a muscle or muscle group, (b) The assignment to another work area or work procedure, (c) In some patients a rest period or alternating work procedures, may prove to be of great benefit. There is little doubt that a period of indoctrination as now practiced by some firms has served them well in this regard.

It must be pointed out that jobs in which a high incidence of wrist dysfunctions are encountered, may be considered of a menial type. Such positions are many times assigned to recently hired employees who are likely to feign disability in an attempt to be relieved of such chores or to enable them to obtain a new assignment.

It is the author's opinion as a result of careful and exhaustive study of the pathologic changes involved, job training will be of considerable assistance in decreasing the incidence of the syndromes discussed.

Summary

The accelerated technological advances having given birth to wide varieties of semi-automatic industrial control devices have also produced an increased incidence of wrist and elbow dysfunctions, due to repeated movements of the hands and forearms demanded by these mechanical devices.

An analysis of 93 cases of wrist and elbow dysfunctions was made in an effort to determine the relationship between the work effort of these patients and their disabilities. Hitherto relegated to passing interest, these dysfunctions are now of significant interest to the orthopaedic surgeon.

The present study, in addition, was made to evaluate the comparative results obtained by conservative as well as surgical methods.

The results of the study indicate the necessity for evaluating the effects of certain office and industrial production procedures. The introduction of indoctrination and educational programs of work simplification type are important factors.

In areas where a high incidence of dysfunctions may occur, surveys by the orthopaedic surgeon and industrial management personnel of the work procedures involved, are not only necessary but a duty.

An evaluation of the pathologic material obtained at surgery is a great aid in determining the pathologic mechanisms responsible for the symptoms encountered.

REFERENCES

1. Bunnell, Sterling: Surgery of the hand. J. B. Lippincott Co., 1956.

2. Burman, Michael: Stenosing tenovaginitis of the dorsal and volar compartments of the wrist. AM. Arch. Surg., 65: 752, 1952.

3. Cannon, B. W. and Love, J. G.: Tardy median palsy, median neuritis, median thenar neuritis amenable to surgery. Surgery, 20: 210, 1946.

4. Finkelstein, Harry: Stenosing tendavaginitis at the radial styloid process. J. Bone and Joint Surgery, 12: 509, 1930.

5. Jones, Sir Robert: Reconstructive surgery of the upper extremity. Arthur Steindler, M.D., 70-707, 1923.

6. Lipscomb, Paul R.: Tenosynovitis of the hand and wrist; carpal tunnel syndrome, deQuervain's disease, trigger digit. Clinical Ortho., Vol. 13, 164-179, 1959.

7. Nissen, K. I.: Etiology of carpal tunnel compression of the median nerve. J. Bone and Joint Surgery, 34B: 514-515, 1952.

8. Phalen, G. S., Gardner, W. J., and LaLonde, A. A.: Spontaneous compression of the median nerve at the wrist. J.A.M.A., 145: 1128-113, 1951.

9. Tanzer, R. C.: The carpal syndrome. Clinical Orthopaedics, 15: 171-179, 1959.

10. Tinel, J. and Hoffman, P.: Peripheral nerve injuries. Haymaker and Woodhall, Chap. 9, 185-188, 1953.

11. Thompson, W. A. L. and Kopell, H. P.: Peripheral entrapment neuropathies of the upper extremity. N. E. Journal of Med., 260: 1261-65, 1959.

12. Woltman, H. W.: Neuritis associated with acromegaly. Arch. Neurol. and Psychiat., 45: 680, 1941.

Intra-Articular Cortico-Steroid Therapy

Comparative Study Of 1471 Knee Injections

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DURING the past decade, numerous papers have dwelt with intra-articular injections of cortico-steroid preparations in the treatment of arthritis. This form of therapy has been widely accepted as a supplemental and practical palliative procedure in arthritis, especially in rheumatoid arthritis and degenerative joint disease.[1] Since the first use in 1950 of intra-articular injections of cortisone acetate, seven related compounds have become available to the practicing physician. The purpose of this paper is to compare the therapeutic effectiveness of these drugs when injected into knee joints involved with rheumatoid arthritis or degenerative joint disease (osteo-arthritis).

Although various peripheral joint injections with different types of cortico-steroid medications has been frequently reported in the literature, it was felt that the knee constituted the best joint to evaluate the therapeutic results of intra-articular cortico-steroid injection.[2–6]

The knee is the most easily accessible joint for intra-synovial injection. Intra-articular effusions are readily aspirated by the suprapatellar approach from the medical or lateral side. The obtainment of synovial fluid by aspiration indicates proper positioning of the needle for the intra-synovial instillation of the cortico-steroid. In those cases where effusions were clinically absent, or were unable to be aspirated, if present, the infrapatellar approach was used, inserting the needle medially or laterally to the infrapatellar ligament, directing the tip into the intra-condylar space. It is felt that poor responses or failures of "intra-articular" injections is most commonly due to fact that the synovial space is missed and that the injection is primarily peri-articular.

The knee was also chosen in that it is one of the easiest joints to evaluate objectively in regards to swelling (circumferential measurements), tenderness, local heat, intra-articular effusions, range of motion, pain on motion (with and without weight bearing), and muscle strength.

This study comprises 228 patients with rheumatoid arthritis who received a total of 944 intra-articular injections into their knees; and 201 patients with osteo-arthritic knees who received a total of 527 similar injections into their knees. This grand total of 1471 knee injections was comprised of eight groups; seven groups had one form of another of cortico-steroid compound injected, and the eighth group had only aspiration of their knee and/or injection of 1 to 3 cc. of physiological saline solution, thus comprising a control group. The patients in these eight groups were selected at random and not divided in accordance to the severity, duration, and (in the rheumatoid patients) activity of their basic disease process. A number of patients received at different times one or another of the injectable cortico-steroid medications into their knees. At no time did any patient know which drug was being injected into their knees.

The results of the intra-articular injections were graded as Excellent, Good, Fair, and No Response. Excellent was labelled when there was a prompt subsidence of symptoms and objective findings, and the duration of benefits lasting three or more weeks. Good and Fair results were given in accordance with subjective interpretation of symptomatic

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improvement, persistence of objective findings to a varying degree, and duration of improvement for one to three weeks. The No Response category was given to those knee joints that had no or slight subjective and/or objective improvement, or improvement of under seven days duration.

It has been the author's opinion from previous experience that injections of a larger amount of a cortico-steroid intra-articularly were more effective and had longer duration of benefits than the usual recommended doses; e.g. hydrocortisone 25-50 mgm. for the knee. Therefore, initiation of this study was with the use of 100-125 mgm. of hydrocortisone acetate per injection. With the availability of newer compounds, the dosage was adjusted to the estimated anti-rheumatic potencies of the compound employed. Therefore, the following dosage range was used;—hydrocortisone acetate and hydrocortisone tertiary butyl acetate 100-125 mgs; prednisolone acetate and prednisolone tertiary butyl acetate 37.5 mgm.; methyl prednisolone acetate 30 mgs; triamcinolone acetonide 30 mgm; and dexamethasone tertiary butyl acetate 6 mgm.

The patients in this study were from the private clinical practice of the author. Those patients in the rheumatoid group met the criteria of the American Rheumatism Association for definite or classical rheumatoid arthritis. Some of the patients with rheumatoid arthritis were receiving systemic cortico-steroid medication, which failed to adequately suppress their disease process with the dosage used. By periodic intra-articular injections of a steroid, the systemic maintainance dosage could frequently be kept in a low therapeutic range. The rheumatoid patients were not grouped according to duration, activity, or severity of their disease, so that there was a wide clinical range in all eight groups.

Those patients with degenerative joint disease (osteo-arthritis) of the knee were diagnosed more by exclusion than by any specific criteria. It is well known that X-ray findings of degenerative joint disease frequently do not correspond to clinical symptoms and findings. When clinically possible, patients with ruptured or degenerative menisci were excluded from this study. In some of this group, symptoms followed relatively minor trauma, torsion, or strain to the knee. It is accepted that traumatic synovitis is more apt to occur in joints with degenerative changes present. In the experience of the author, effusions in the knee due to degenerative joint disease is more common than generally reported.

Table I

				RESULTS IN %			
DRUG DOSAGE		NO. OF PTS.	KNEE INJ.	EXEL.	GOOD	FAIR	POOR OR NONE
Hydrocortisone Acet.	RA	135	232	38	38	15	10
100-125 mgm.	DJD	89	186	40	24	18	17
Hydrocortisone TBA	RA	154	284	58	24	12	5
100-125 mgm.	DJD	63	137	45	24	18	14
Prednisolone Acet.	RA	67	123	39	23	24	14
37.5 mgm.	DJD	48	82	36	26	28	11
Prednisolone TBA	RA	51	79	48	30	15	3
37.5 mgm.	DJD	26	31	48	23	23	0
Methyl-prednisolone	RA	58	64	53	28	16	3
30 mgm	DJD	10	10	70	0	30	0
Triamcinalone Acetonide	RA	47	52	50	31	10	10
30 mgm.	DJD	15	17	53	24	18	6
Dexamethasone TBA	RA	28	32	56	28	9	6
6 mgm.	DJD	14	15	40	33	20	7
Control	RA	64	78	8	8	12	73
	DJD	17	49	14	8	12	65

RA—Rheumatoid Arthritis.
DJD—Degenerative Joint Disease.
TBA—Tertiary butyl acetate.

When obtainable, the synovial fluid was examined grossly for viscosity, color, and tubidity. Cell counts were performed; and, with the addition of acetic acid, the character of the mucin precipitation was determined. In a few cases, the synovial fluid findings from osteo-arthritic knees were suggestive of a more inflammatory process, such as a mono-articular rheumatoid arthritis.

The actual duration of improvement following intra-articular injection of steroids is difficult to assess in that frequently a particular joint involvement may be episodic, both in rheumatoid arthritis and osteo-arthritis. Therefore, the duration of improvement cannot always be considered a major criteria in the evaluation, especially in those cases of clinical improvement with long duration.

Analysis of therapeutic results of 1344 knee joints that received one or another of the seven forms of injectable cortico-steroid reveals a surprisingly similar result, with 76 per cent of the rheumatoid knees being rated excellent or good, and 69 per cent of the osteo-arthritic knees having similar ratings. There appeared to be no essential difference in the effectiveness of the various injectable steroids although the knees receiving the tertiary butyl esters tended to have longer duration of improvement. It was repeatedly observed that a joint which failed to satisfactorily respond to one injectable steroid, frequently had definite improvement if another form was used in a comparable dosage ratio. An explanation for this cannot be given.

It is of interest that 16 per cent of the control rheumatoid knees and 22 per cent of the control osteo-arthritic knees had favorable results. These cases were principally in knees from which fluid was aspirated.

The knees that had only fair or no satisfactory response to intrasynovial instillation of costico-

TABLE II

DRUG		LOCAL FLARE-UP	SYSTEMIC REACTIONS
Hydrocortisone Acetate	RA	9	18 (8%)
	DJD	7	
Hydrocortisone TBA	RA	4	
	DJD	1	
Prednisolone Acetate	RA	2	11 (9%)
	DJD	1	
Prednisolone TBA	RA	1	
	DJD	0	
Methyl-prednisolone	RA	0	24 (44%)
	DJD	0	
Triamcinalone Acetonide	RA	0	21 (40%)
	DJD	0	
Dexamethasone TBA	RA	1	
	DJD	0	
Control	RA	2	
	DJD	1	

TABLE III

SUMMARY

	EXCELLENT OR GOOD RESULTS	FAIR RESULTS	POOR OR NONE
Steroid Injections			
866 Rheumatoid Knees	76%	16%	8%
478 D.J.D. Knees	69%	22%	9%
Local Flare-up	1.9%		
Control Injections			
78 Rheumatoid Knees	16%	12%	73%
49 D.J.D. Knees	22%	12%	65%
Local Flare-up	2.4%		

steroid were usually those in which mechanical factors were prominent, such as mild contracture (up to 10 degrees), weak quadricep muscles, ligamentous instability, and moderate to marked thinning of the joint space or joint erosions by radiological examination. This emphasizes that cortico-steroids should not be employed to rid symptoms primarily due to poor joint mechanics.

Of the 1344 injections with a steriod compound, there were 116 (9 per cent) that failed to give any significant benefit, and hence were considered failures.

There were 29 (2 per cent) local flare-ups from the total number of knees injected. All of these reactions were of 6 to 72 hours duration and consisted primarily of increased pain in the joint. There were no infections resulting from the injections.

Seventy-four patients of the series with rheumatoid arthritis had mild to marked improvement of their generalized arthritic disease for 2 to 7 days following the intra-articular injection. This occurred in 18 of 232 receiving hydrocortisone acetate (8 per cent), 11 of 123 receiving prednisolone acetate (9 per cent); 24 of the 54 receiving methyl-prednisolone acetate (44 per cent); and in 21 of the 52 receiving triamcinolone acetonide (40 per cent). In the groups where the tertiary butyl acetate compound was used, no systemic reactions were observed or reported by the patient. It is therefore recommended that the less soluble forms be utilized, especially in those cases where systemic steroid effect is contraindicated.

Analysis of 1344 knee injections with corticosteroid medication and 127 control knee injections in patients with rheumatoid arthritis or osteoarthritis revealed that approximately 73 per cent received satisfactory clinical improvement following injection with an active steroid compound. There was no essential difference in the effectiveness of the various drugs at the dosage range used although the tertiary butyl acetate compounds tended to have a longer duration. Lesser soluble tertiary butyl acetate compounds had no clinical systemic effect on the patients receiving them. Two per cent of patients receiving intra-articular injections had a temporary increase in local pain, but no infections occurred.

REFERENCES

1. Smyth, C. J. et al: Thirteenth rheumatism review. Ann. Int. Med., 53: 7, (Dec.) 1960.
2. Cozen, L.: Hydrocortisone tertiary butyl acetate for local injection. Am. Prac. and Digest Treat., 8: 1092, (July) 1957.
3. Norcross, B. M.: Intra-articular administration of hydrocortisone in high concentration, use in treatment of arthritic knees. J.A.M.A., 167: 839, (June 14) 1958.
4. Zuckner, J., Machek, O., and Ahren, A. M.: Hydrocortisone tertiary-butylacetate for intra-articular therapy in rheumatic diseases. Ann. Rheumat. Dis., 15: 258, (Sept.) 1956.
5. Zuckner, J., Machek, O., Caciolo, C., Ahern, A. M., and Ramsey, R.: Intra-articulate injections of hydrocortisone, prednisolone, and their tertiary-butylacetate derivatives in patients with rheumatoid arthritis and osteo-arthritis. J. Chron. Dis., 8: 637, (Nov.) 1958.
6. Hollander, J. L.: Intra-synovial corticosteroid therapy: A decade of use. Bul. on Rheum. Dis., 11: 5, (Jan.) 1961.

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EDITORIALS

A Tribute To Dr. Swett

This issue of CONNECTICUT MEDICINE is a tribute to Paul Plummer Swett and his legacy to Connecticut.

One of Dr. Swett's contemporaries has described him as a man intensely interested in everything about him. His large practice carried him to all corners of the State. The third generation in a family of physicians, he brought understanding and great personal interest as well as an ability which endeared him to his patients everywhere he went. His reputation was national so most of the contemporary "famous names" in orthopedics came frequently to Connecticut to visit.

His pioneering work on synovectomy, his early use of Lane plates in fractures, and his detailed survey of treatment of tuberculosis of bones and joints at various centers in the United States (completed just before the era of antibiotics and chemotherapy for this disease) are still recognized.

In medicolegal medicine he is fondly remembered and respected for his "humane and judicious opinions." As Compensation Commissioner Leo J. Noonan has said, "That was a time when we got together and solved many problems—and it didn't take a committee either."

The growth and reputation of the Newington Home for Crippled Children were in large measure due to his interest and effort. The first meeting of the medical staff of that institution was held at his office in 1922 and on retirement several years later, he made foresighted recommendations that have influenced that institution's growth as a hospital.

Dr. Swett was instrumental in the development of the Division of Crippled Children in this State and, during and after its foundation period, served as chairman of its Technical Medical Advisory Committee.

His technical skill and organizational ability brought about the treatment of fractures in the Hartford area almost exclusively by orthopedic surgeons as early as World War I.

He was proud of his contributions in the field of veterinary medicine. As a result of observations on his own farm, he and Professor George C. White of Storrs' Agricultural Experiment Station wrote on "Bangs Disease Infection Transmitted to a Dairy Herd by Horses," and he was one of the first to recognize that birds are carriers of encephalomyelitis in horses and humans.

All foresighted men of history have felt impatience and frustration because of inability to effect immediate achievement; still, their ideas have been seeds sown for our harvest. Before we take full credit for our own accomplishments, we should reflect and acknowledge their vision and wisdom.

BURR H. CURTIS, M.D.
Guest Editor

Paul Plummer Swett

The Connecticut State Medical Society must record the death of another loyal member and faithful worker. For the past seven years Paul Swett, retired from practice because of ill health, has faithfully served as a member of the editorial board of the Journal. His column, "From Our Exchanges," have given ample evidence of his interest in the entire field of medicine, his willingness to devote hours reading and abstracting scientific articles, and his ability to present to our readers kaleidoscopic views of the latest achievements in medicine. Paul Swett as a genial friend will be sadly missed by many, as exchange editor of the Jouranl his loss will be multiplied many times.

Stricken down by a cardiac ailment in the prime of life, Paul Swett set an enviable example to his fellowmen by maintaining that gracious, friendly smile of his and by finding in the retirement of his Bloomfield home a task he could cheerfully perform within his physical limitation for the benefit of all the many readers of the Journal. He loved his work, his hospital, his patients. Deprived of the latter, unable to enjoy his previous hospital activities, he found in his pen a solace for his restricted life. His "Orthopedic Surgery in Connecticut," published by the Journal in 1946, and his "Hartford Hospital 1854-1948" which appeared in the hospital's *Bulletin,* bear eloquent testimony to his ability as a writer. As an orthopedic surgeon he was preeminent.

The Journal records his passing with deepest regret.

This editorial appeared in the Connecticut State Medical Journal *following Dr. Swett's death in 1950.*

Rheumatic Diseases Today

Late in the 1940's, the American Rheumatism Association, realizing that rheumatic diseases represented one of the most neglected fields of medicine requested the National Research Council to undertake a survey designed to serve as a basis for the development of a comprehensive long term research program in arthritis and other rheumatic diseases. A committee was established by the Council with members representing the various disciplines concerned with rheumatic diseases, and in April 1949, the committee's final report was submitted.

The overall problem was divided into three fields of study: first, a general understanding of the tissues involved; second, a study of the individuals afflicted with rheumatic diseases, the nature of the disease, the ensuing changes and how they may be altered; third, a study of the social environment of the individual as an etiological factor, and the sociological problems arising from these crippling diseases.

In its final report the committee stated that the greatest emphasis should be placed on those phases of the research program where fundamental knowledge was lacking—namely at the tissue level.

During the past 12 years extraordinarily productive work has been carried out, using biophysical techniques developed by physicists and applied by biologists. These techniques utilizing electrophoresis, ultracentrifugation, electronmicroscopy, stable isotopes and radioactive elements, as well as culture studies have greatly increased our knowledge of the composition of connective tissue. Its cellular and fibrillar structure and the ground substances are subjects of intensive study by morphologists, biochemists and physicists. The genesis, turn over, plasticity and metabolism of connective tissue was little understood 10 years age, but today a start has been made along these lines which is as intriguing to the research mind as any in medicine. It is only by the acquisition of this basic information that the ultimate solution will become possible.

Except for gouty arthritis, whose pathogenesis is partially known and whose therapy is therefore rational, the treatment of other forms of rheumatic disease is essentially empirical. Doctor Scull's paper in this issue of CONNECTICUT MEDICINE presents a review of the treatment of rheumatoid arthritis, one of the most crippling of all the rheumatic diseases. This disease, in its typical full-blown form offers little difficulty in its diagnosis, but in its atypical forms, which are probably more numerous than was thought at one time, it presents very great diagnostic problems. Diagnosis of these forms of the disease becomes arbitrary. Its treatment beyond the basic program of salicylates, rest and physical therapy depends somewhat on the type of rheumatoid arthritis the individual has, and always represents a calculated risk, whether it be gold, steroids, butazolidin or antimalarial drugs. Crippling can be prevented, however, in a vast majority of cases of rheumatoid arthritis, and many individuals will have spontaneous remissions which last for years.

A survey conducted in a British industrial city a few years ago revealed that nearly a third of all arthritis patients had never seen a doctor because they thought that nothing could be done to help them. The medical profession is to blame for this inaccurate impression. Even today an uninformed portion of the medical profession continues to feel that there is nothing to do for arthritis but take aspirin or go to Arizona. This is indeed regrettable.

The relationship of rheumatoid arthritis to other collagen diseases, the overlapping of these clinical entities and their relationship to a number of serum gamma globulin factors have been subjects of much interest. The high incidence of polyarthritis resembling rheumatoid arthritis among individuals with agammaglobulinemia is a provocative finding which has led investigators to study more closely the possible role of genetics in this disease.

Today rheumatic diseases are at last receiving the attention of investigators from a wide diversity of scientific disciplines, and one hopes that more full time well trained scientists and clinicians will turn their attentions to this important group of diseases.

GIDEON DE FOREST, M.D.

Advances In Glaucoma

Two out of every one-hundred people forty years or over have glaucoma and the population in the older age groups is ever increasing. In the United States, one out of eight blind people have lost their sight because of glaucoma and this sight can never be restored. Blindness is always tragic but it is even more so for the victims of glaucoma when their blindness could have been prevented by early detection and early treatment.

They say "life begins at forty" but this is also the age when glaucoma usually strikes. Some 95 per cent of this "forty-plus" age group are afflicted with the primary type of this disease called open-angle glaucoma (simple, wide-angle, chronic simple). This kind of glaucoma is often referred to as a "thief in the night" as when it strikes in its non-congestive phase, the victim is most often completely unaware that he is losing his sight.

Contrary to this, the person afflicted with the relatively rare type of primary glaucoma called angle-closure glaucoma (narrow-angle, closed-angle, acute congestive) is warned almost immediately by the pain and rapid decrease in vision. This type of primary glaucoma hurries the patient to the physician. Striking suddenly it can be cured quickly and often permanently by surgery. For angle-closure glaucoma, operation is the procedure of choice.

The two main types of primary glaucoma (a. angle-closure and b. open-angle) are classified by studies which include observing the drainage angle with an instrument called a gonioscope.

In the angle-closure type, there is mechanical obstruction of the trabecular spaces by the iris. In the eye that is red and painful, usually a broad basilar iridectomy is performed and since primary glaucoma is usually a bilateral disease, a prophylactic peripheral iridectomy is done in the fellow eye during the same hospitalization. The prophylactic peripheral iridectomy is sometimes spoken of as the "small operation that does a big job." Usually by these procedures the patient is cured and may not even require drops thereafter.

In open-angle glaucoma medical management is the procedure of choice and surgery is performed only as a last resort. With the gonioscope it is noted that in the early stages the iris angle is open. The trouble here, as a rule, is in the outflow channels beyond this point which include the trabecular meshwork, Schlemm's canal, and the aqueous veins. This is what is spoken of as a pressure flow resistance or a decreased facility of outflow.

Medically, at first miotics are used to control the pressure and preserve the vision and field of vision. A second major approach is the use of carbonic anhydrase inhibitors such as acetazolamide (Diamox),* methazolamide (Neptazane)† and ethoxzolamide (Cardrase) ‡ which probably work by decreasing the formation of agueous. These are given in doses usually larger than those used by the internist for retention of body fluids. These drugs are to be used in angle-closure glaucoma only in the acute phase.

Topical epinephrine compounds such as levo-epinephrine apparently work by decreasing intraocular pressure both by inhibition of aqueous secretion and in some obscure fashion by enhancing the facility of outflow somewhere behind the open angle. Often miotics, topical epinephrine and carbonic anhydrase inhibitors are combined to lower intraocular pressure. Topical epinephrine is especially useful to patients on miotics who experience a reduction of acuity due to early central lens changes. Recent data indicates that in about 80 per cent of patients having the open-angle type of glaucoma that is uncontrolled by large doses of oral carbonic anhydrase inhibitors and local miotics, the addition of forms of l-epinephrine will help to control the pressure and increase the outflow. This improvement can be expected within one month in one-third of the patients and within one year in about two-thirds of the patients. A small per cent will show this improvement after the therapy has been continued for a year or longer.

Of those patients who do not receive the improvement, one in five will lose this improvement within a year and about one in ten treated with epinephrine may be expected to develop an allergy or cannot tolerate the drug. However, preparations are appearing with less side reactions.

When improvement occurs, the dose of miotics and carbonic anhydrase inhibitors can be progressively reduced. However, it is by no means certain that all eyes with open-angle glaucoma will respond to epinephrine nor is there any reassurance that epinephrine will eventually control all cases of this form of glaucoma.[1]

Surgical treatment of open-angle glaucoma is decreasing. It is reserved as a last resort. In general there are three lines of attack surgically: (1) by de-

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**Acetazolamide* (*Diamox*)—*Lederle Laboratories Division, New York, N. Y.*

†*Methazolamide* (*Neptazane*)—*Lederle Laboratories Division, New York, N. Y.*

‡*Ethoxzolamide* (*Cardrase*)—*The Upjohn Company, Kalamazoo, Mich.*

creasing the secretion of aqueous; (2) by causing internal drainage and (3) by creating external drainage.

Today, the most popular theory is that open-angle glaucoma is a disease of the eye in which an increased intraocular pressure damages the optic nerve and slowly causes blindness. The second theory is that glaucoma is a disease of the whole person especially the central nervous system.[2] The latter is more difficult to prove. However, it behooves all physicians to urge patients to make certain that medications for conditions such as colds, angina pectoris, peptic ulcers, spastic colon, and muscle spasms don't aggravate glaucoma. The more common of these are the belladonna-like drugs or anticholinergics. It is known that some of these drugs spill over into the eye less than others. Teamwork of physicians is needed in coordination of these medications. It is the job of the family physician to help the patient maintain good general health and at the same time try to keep emotional upsets in the life of the patient with glaucoma down to a minimum. The family physician should urge the patient with a known glaucoma to see his ophthalmologist regularly, to use his eye medications as instructed and to limit or avoid the use of tobacco, coffee, tea, alcoholic beverages and especially large quantities of fluid.

Ideally the physician should learn how to take ocular pressures or to urge his patients, especially in the "forty-plus" age group to have an ocular pressure taken either at mass screening tests or by their own ophthalmologist.

The weight of the treatment and research of glaucoma belongs to the ophthalmologists. However, since glaucoma is a disease with as yet many unsolved problems and since the major portion of patients have in the early stages a silent, sight-stealing type of glaucoma, this is a plea for all physicians, especially the non-ophthalmologists, to help in the early detection of glaucoma by making his patients aware of glaucoma with its problems and the advances outlined here.

R. M. Fasanella, M.D.

REFERENCES

1. *Ballintine, Elmer J. and Garner, L. L.*: Improvement of the Coefficient of Outflow in Glaucomatous Eyes During Prolonged Local Treatment with Epinephrine. Presented at the Annual Meeting of the American Medical Association, Section on Ophthalmology, June 29, 1961, New York City, N. Y.

2. *Goldmann, Hans*: Some Basic Problems of Simple Glaucoma. Amer. J. of Oph. 48: No. 3, Sept. 1959, pp. 213-220.

The Doctor And The Problem Of Human Survival

> *"Between two Words, War and Peace, are entwined the anguish and hopes of the World."*—Pope John XXIII
>
> *"Heaven never helps the men who will not act."*—Sophocles fragment

The physician bears an awesome and fearful responsibility to use his knowledge with wisdom and compassion for the benefit of his fellow man. In the declaration of Geneva, the oath which medical students take on graduation, it is solemnly undertaken that "I will not permit consideration of religion, nationality, race, party politics or social standing to intervene between my duty and my patient. I will maintain the utmost respect for human life, from the time of conception; even under threat I will not use my medical knowledge contrary to the cause of humanity."

It was Galileo who said that you cannot teach a man anything, you can only help him to find it within himself. Perhaps if the physician, bearing in mind his true role in humanity's future, could realize the desperate state in which humanity finds itself today, he will find a way to help lead mankind towards greater achievement and greater happiness and away from total destruction.

Let us realize that there hangs over us today the nightmare of utter and complete destruction. Let us realize that the atom bomb—the ultimate weapon is in the hands of the communists as well as our own and that a nuclear war would scourge the entire globe and exterminate people by the millions. What can we physicians do to move humanity away from war with its total waves of destruction, slaughter and grief? First of all, we must realize that science is deeply involved in this problem and that physicians have a particular duty towards its solution. We must learn the facts so that we can make them known to others. We must understand the consequences of alternative policies and we must set our minds with other scientists to seek new solutions to war. In a recent sober analysis of this problem in Science called "Science and Human Survival" it is made clear that unlimited war was obsolete, that a full scale nuclear conflict would kill a considerable proportion of populations, destroy major cities, disrupt the present structure of the societies it would be intended to protect. Therefore, nuclear war is self-defeating and an alternative must be found. The evidence for this, marshalled in this report is overwhelming, articles in *Time* notwithstanding, and should be soberly faced by all people, especially those like the physicians who are dedicated to human welfare.

Current war preparations involving new weapons, nuclear, chemical and biological, have not had a trial in actual combat and there is no historical evidence that adaptation and survival are possible in this type of warfare or that these weapons can achieve the purpose for which they were developed: "The protection of nations or social orders." We can reason about some of the possibilities. If the U.S. is attacked with 1 to 10 negatom bombs totalling only 1,500 to 3,000 megatons it would leave 40-70 million dead within a few weeks. An equal number might survive but be injured. Twenty megatons on New York would cause casualties of 60 per cent of the population. Blast and fire storms would demolish the city. A massive nuclear attack on the U.S. could destroy most of the nations cities. Norbert Wiener has pointed out that we cannot depend on protective devices because they are not fool-proof and that complex computer systems may respond in ways other than those anticipated by their human controllers and do so, so fast as to produce a wrong decision before there is time for corrections. With this scale of killing and destruction what would be its consequences? Science goes on to say:

(a.) All social, economic processes that depend on cities would be massively disrupted such as: communications, transportation, finance, a considerable part of light and heavy manufacturing, major medical facilities, institutions of higher education, scientific laboratories, libraries and centers of government.

(b.) If we add to this the widespread effects of fires, radiation outside of the range of direct hits, it is apparent such an attack would largely destroy our present social structure.

(c.) To maintain operations of any kind after such an attack would require a system of social, economic and political organization radically different from that which we now enjoy. In fact, we have no way of anticipating what that would be.

(d.) A shelter program cannot greatly influence the conclusion that a massive nuclear attack would immediately have the effect of destroying the social structure, Whatever a shelter program is designed against, it cannot provide protection against a stepping up of the intensity of the attack. In fact, the deeper and deeper emplacement of more and more of our activities into underground shelters would even in the absence of nuclear war make profound changes in our normal social structure.

There is no escape from the conclusion about the immediate effects of a full-scale nuclear war on the belligerents; it would kill a preponderant number of their populations, it would destroy their major cities; it would disrupt the present structures of the societies which it would be intended to protect. But the long term effects of nuclear war is vastly more complicated and if we ask ourselves questions about it, it begins to sound like a nightmare. For example, what lasting effects would the great fires and radioactivity produced by the attack have on the biological system, soil, water, air, plants and animals upon which man depends? How would the increased death rates, widespread disease and genetic effects of the war, affect the vitality and viability of the few survivors? Would the immediate destructive effects of a nuclear attack cause major irreversible changes in the social, economic and political organization of our society? How would the foregoing effects, the aftermath of direct experience with a nuclear attack, influence the behavior of human beings and how would new patterns of behavior influence social organizations and operations? In answer to these questions the article in Science points out, the scientific evidence is very limited and uncertain. The long term ecologic effects are nearly impossible to assess and even difficult to speculate about. Science which has helped to guide society to its present level of accomplishment, fails to predict whether human societies would ever return to their present state of competence following a nuclear war.

We do not now have a way to survive nuclear war, but if we learned one, the basic problem will remain, for other kinds of equally devastating wars are also possible. Shelters secure against fire storms and blast are vulnerable to an attack by chemical agents. If a way were found to protect against a chemical assault, farmlands would remain unshielded from fertility destroying agents. It should be clear to anyone that science has now achieved such mastery over nature as to place in human hands the power to end human life. Our problem stands out as one not just the prevention of a particular war but the continuous protection of human society from a potential danger that will in the foreseeable future continue to threaten the human species with extinction. If we permit such a war to occur in the future course of human history, we run the risk of ending human history altogether. Do we have a right in this generation to make decisions that may deny life to all future generations?

President Kennedy, has recognized this in clear relief when he stated "Today every inhabitant of this planet must contemplate the day when it may no longer be habitable. . . . The weapons of war must be abolished before they abolish us."[2]

Physicians, who participate in nuclear, chemical or biological warfare clearly violate the Hippocratic oath which some of us took and the oath of Geneva which others did. As citizens, we must work with those "Whose cortex has won over the thalamus . . . The dream animal with the human brain had better break the habit (of war) and break it soon or the sweet dream (life) will fast become a nightmore."[3] (death). At the beginning of this editorial it is stated "Heaven never helps the men who will not act." Let us then act now.

L. H. N.

BIBLIOGRAPHY

1. Science and Human Survival. Science *134*, 2080, December 29, 1961.

2. J. F. Kennedy. Address of the President of the United States to the General Assembly of the United Nations. September 25, 1961.

3. Sweet Dream or Nightmare, editorial, Ann. Int. Med. *55*, 865, November, 1961.

Thyro P. B. I. Kits

An increasing number of kits are becoming available for measurement in private offices and clinical laboratories of constituents of blood and urine. Most of the advertisements would lead technically inexperienced persons to believe that with these kits they could easily perform difficult analyses. The manufacturer of one kit which has appeared on the market recently, "Thyro P. B. I. Kit" (Conifer Laboratories, Inc., Brainerd, Minn.), claims that it permits determination of serum protein-bound iodine (PBI) levels without the need for either wet or dry ashing of the precipitated thyroxine.

A subcommittee of the Committee on Standards of the American Association of Clinical Chemists (A.A.C.C.) has presented the results of evaluation of this kit (A. G. Ware, et al, Clinical Chemistry, in press, Jan-Feb., 1962) which indicate that it is completely unreliable. Four independent laboratories participated in the study and three different lots of Thyro Kit were used. PBI was determined in 28 different sera by both the Thyro Kit and the standard alkaline incineration method of Barker, et al. No correlation was observed between PBI results obtained by the two methods with the exception of values below 2.0 mcg. per cent, and this exception was probably fortuitous in view of the fact that the kit results were very low. The results of the A.A.C.C. study are not only valuable in relation to this product, but also emphasize the need for caution by physicians and laboratory personnel in accepting attractively simple chemical kits.

Reprinted from The Medical Letter on Drugs and Therapeutics.

Systemic Fluoride For Prevention Of Dental Caries

One of the most important public health measures of recent years is the fluoridation of public water supplies. In communities where fluoridation has been introduced, the incidence of dental caries in children has been cut by as much as 60 per cent. The greatest effect is obtained when fluoride is continuously available before the tooth mineral is deposited; therefore, maximum benefits appear in children whose mothers drank fluoridated water during pregnancy and who have themselves had fluoridated water since birth. Older children benefit to a lesser degree.

In communities where the water is not treated, the benefits of fluoridation can be obtained from daily oral supplements of sodium fluoride (not calcium fluoride), available either as tablets or as liquid drops (Karidium—Lorvic; Luride—Hoyt; and others). Supplementation is best started by the mother in the fourth month of pregnancy, when the teeth are beginning to form.

Where the water has little or no natural fluoride, enough sodium fluoride to provide 1 mg. of fluoride ion should be taken daily. This amount is obtained from a single Karidium or Luride tablet, or from an appropriate number of drops of the liquid in drinking water or fruit juice. The fluoride can either be given as a single daily dose, or it can be added to the amount of drinking water the child will take during the day. Or 1 mg. can be added to each quart of water (equal to one part per million) used for the family's drinking and cooking.

The single daily dose insures ingestion of an adequate amount of fluoride each day, but provides the entire amount at once. The addition of fluoride to the drinking and cooking water provides continued ingestion of smaller amounts during the course of a day, as with a fluoridated water supply; but the daily dose is more difficult to control, particularly when not all food and drink are consumed at home. Which method is superior is not known.

Excessive amounts of fluoride may cause brown mottling of the enamel (dental fluorosis), and in very great excess, fluoride may produce skeletal fluorosis with abnormally high bone density. But when the ingested fluoride is of the order of 1 mg. per day, no fluorosis occurs. Some preparations provide sodium fluoride along with vitamin D and ascorbic acid (Enziflur—Ayerst, and Funda-Vite (F) —Hoyt), and other vitamins (Quanti-Vite (F)—Hoyt); however, it is more rational and safer to prescribe vitamins separately.

Reprinted from The Medical Letter on Drugs and Therapeutics.

THE PRESIDENT'S PAGE

On April 15, 1962, Public Act 578, an act concerning medical assistance for the aged, Connecticut's implementation of the Kerr-Mills Act, becomes effective. In order for the doctors of the State to be better informed so they may assist in making the plan work most efficiently with the least inconvenience to possible beneficiaries and further, that the most economical management of available funds may be realized I would like to direct your attention to some aspects of the Act which seem important for your consideration.

Physicians should not suggest to persons 65 and over and who are residents of the State that they make application for benefits until it is ascertained that a single person is receiving from all sources income of $1550 per annum or less and has $900 of liquid assets or if married and living with a spouse $2200 per annum or less and $1300 of liquid assets. It should be further understood that these persons may own their own home. If physicians suggest to persons who do not meet the above eligibility requirements, that they file for benefits then the administrative cost of the program for investigation for unqualified applicants will use up funds needed for benefits intended for those who should be eligible for the program. The funds are limited to 8 million dollars for the biennium and must provide for hospital, convalescent and nursing home costs, prescribed drugs and nursing care for a potential of 31,000 beneficiaries. The physicians must be prepared to resist unwarranted pressures from families and relatives who would prefer to see their elderly confined to institutions. Furthermore, it is considered good medicine for most of these people that their medical care needs be attended in the familiar surroundings of their own homes and only as a last resort that hospital and institutional care be sought.

When the State Medical Society represented its views to the General Assembly during the time of preparation of the Kerr-Mills Legislation we informed our legislators that the medical profession in Connecticut was willing to be compensated on a reduced fee schedule in view of the medically indigent status of those eligible for the program. We felt this action to be in accord with the tradition of the profession. We were also aware that some other providers of service under the act are not being as magnanimous and are in fact receiving compensation in accord with their usual charges. In as much as the State has obligated its citizens to provide medical assistance to the aged and therefore the obligation rests on all the citizenry and not the medical profession alone, it was insisted upon at the legislature that the physician receive compensation for his services but it was rightly stated that we shall accept reduced payment. It is very important that the physicians get their thinking straight on this point because there are some people in the community who would make the care of the aged the sole obligation of the medical profession. Such thinking would have the lawyers give free legal advice, grocers give free groceries, and landlords give free rents to persons of reduced means. As a matter of fact the medical profession has been doing just that for the beneficiaries in the hospital under the old age assistance program.

The medical profession of Connecticut must be prepared for possible unjustified criticism such as occurred in West Virginia. The medical assistance act in West Virginia is a most liberal program and shortly after being in operation expended large amounts of public money. Instead of complaining of the unwarranted liberality of the plan it became more practical for the politician to blame the medical profession for the excessive expenditures. Conversely in New York State, the number of persons eligible for benefits was much less than anticipated and allowed for a considerable accumulation of unexpended funds. It is disappointing to report that I have seen in the press that a government officer in that state has rather recklessly suggested that in view of these unexpended funds, the program now start providing for free dentures and free eyeglasses.

It is of vital importance that the profession do its utmost to aid our Commissioner of Welfare and the Commissioner of Finance and Control in a humane and economical operation of Public Act 578.

Thomas M. Feeney, M.D.

AN OPEN LETTER
to
THE EDITOR OF *THE POST*

This reply was addressed to Mr. Robert Fuoss, Editor of The Saturday Evening Post *in answer to an editorial appearing in the February 3, 1962 issue titled: "The Doctors and the A.M.A."*

February 1, 1962

Mr. Robert Fuoss, Editor
The Saturday Evening Post
Curtis Publishing Company
Philadelphia, Pennsylvania

My dear Mr. Fuoss,

Being a subscriber to *The Saturday Evening Post,* and having read in the February 3, 1962, issue your editorial titled: "The Doctors and the A.M.A.", I am prompted to send you this open critique of your editorial opinion. Since you really covered an awful lot of ground, I regret I am unable to be brief in my rebuttal. Such sweeping allegations, however, cannot be replied to adequately in one-sentence cliches or snappy rejoinders.

I. YOU SAY: "THE KINDLY FAMILY DOCTOR DOES NOT GIVE US THE AROUND-THE-CLOCK SERVICE HE ONCE DID . . (AND) . . WE RESENT IT." . . "THERE IS A RISING CLAMOR AGAINST THE IMPERSONALITY OF MEDICAL CARE, COUPLED WITH MOUNTING INDIGNATION OVER THE INCREASED COSTS OF MEDICAL SERVICES." YOU ASK US TO LOOK AT, AMONG OTHER THINGS, "THE SHARP DECREASE IN THE NUMBER AND CALIBER OF APPLICANTS FOR MEDICAL EDUCATION", AND SUGGEST THIS IS EVIDENCE THAT THE PROFESSION IS "IN TROUBLE".

We reply: Kindliness is certainly an admirable virtue in anyone, but we doubt you can demonstrate that our horse-and-buggy medical forebears had a corner on it. The health of this nation has never been better and more people go to their doctors today than ever before. So, meaningful as the friendly smile and the sympathetic ear may be, it is doubtful they contribute nearly as much to our physical well-being in 1962 as improved methods of diagnosis, more competent surgery and dramatically effective modern drug therapy. Around-the-clock working hours are as rare in America today as the whooping crane. For some the twenty hour week seems to have great attraction, but while contemporary physicians do like to take time off once in awhile to be with their families, I think if you visit your local hospital almost any time in the early morning hours you will still find a surprising number of private practitioners walking the corridors as they move about taking care of their patients.

As to the "impersonality of medical care", aren't you sort of generalizing there? For example, what do you have to say about *all* publishers, or *all* editors, or *all* military men, or *all* labor leaders or *all* anything else? The contribution each physician makes to the patient-doctor relationship is something entirely personal to himself and each of his individual patients. There are certainly medical men who, by nature, are gruff and dispassionate, and there are many others who are not this way at all. There are no set rules of conduct here—nothing that can be legislated or enforced by a constabulary. But there still remains in America what is commonly called "freedom of choice", and no patient need put up for long with a physician who does not suit him or who appears not to be interested in him or his problems. It's so easy to generalize, and yet we should *all* try hard not to, shouldn't we?

The costs of medical care? Yes, they are certainly considerable but not actually unrelated to the economy as a whole. And how thankful we can be for health insurance and prepayment plans! By the way, did you happen to read in the January 15, 1962 issue of *Medical Economics* that Americans are currently spending $19.4 billion on recreation, but only $5.2 billion on hospital services; $9.9 billion on liquor, but only $5.0 billion on physicians' services; and $7.5 billion on tobacco in all its forms, but only $3.6 billion on drugs? Among a people affluent enough to lay out some $36 billion on luxuries and other non-essentials, don't you think this alleged "mounting indignation" over medical costs you make mention of has a slightly hollow sound to it? Of course, some labor people and government planners are asking us to believe we can have our cake and eat it too, but after all, you know, there really isn't a Santa Claus and that big rock-candy mountain is only a legend. Besides too much of that recreation, liquor and tobacco is likely to be bad for our health!

Finally, what about the medical student situation? Has the fact come to your attention that the number of physicians (about 130) per 100,000 population in this country has not changed significantly since 1921, according to the U. S. Department of Commerce—Bureau of the Census? Do you know that the Josiah Macy, Jr. Foundation reported on November 16, 1961 that "the number of graduates from American medical schools was 6,860 in 1960 as compared with 2,529 in 1922 and 5,553 in 1950.", and that a 1961 study by the A.M.A. showed: "When the college records of the entering medical classes for the past several years are examined . . little support . . is given to the thesis that progressively poor scholarship is demonstrated by the applicants", and, based on the Medical College Admission Test, "the average scores have remained essentially the same each year since 1952."? Findings like these, it seems to us, takes just a little bit off the validity of at least this one of your rather *non sequitur* conclusions. Or don't you think so?

II. YOU SAY: "THE FACT IS THAT TODAY'S PATIENT, ON AVERAGE, IS VASTLY MORE SOPHISTICATED MEDICALLY THAN . . TWENTY YEARS AGO." . . "THE 'PAPA KNOWS BEST' SCHOOL OF MEDICAL PRACTICE . . IS WHOLLY OUT OF PLACE TODAY." . . "THE STRAIN GETS EVEN GREATER WHEN THE DOCTOR CARRIES THIS POMPOUS ATTITUDE . . INTO THE POLITICAL AND SOCIAL ARENA."

We reply: Sir, do you really mean to suggest that today's patient, having consulted a physician of presumed competence (either because of community standing or professional certification) is sufficiently "sophisticated" to seriously question that physician's advice or treatment? True, every patient is entitled to receive such information as he needs to understand the nature of his condition—he may ask for another opinion, if he desires, or even change doctors for that matter—but we simply cannot agree that anyone would be in a better position to evaluate the rightness or wrongness of a physician's judgment after subjecting that judgment to some sort of do-it-yourself "third degree". From experience, we know that many people become confused and needlessly alarmed by long-winded, technical explanations of their medical problem and, paraphrasing your own words, the doctor usually *does* "know best" how much to tell one patient and how little to tell another. This is not a manifestation of pomposity, as you imply. In most cases, it is a matter of doing what is thought to be most beneficial for the patient.

Further, we physicians have not elected to take medical care into the political and social arena. Politicians and others have elected to do this, against our advice and despite our pleas that it not be done. Ever since the rejection of the Wagner-Murray-Dingell Bill in the late 1940's, the fight to put medicine under the thumb of government has been going on continuously — sometimes as a "cold war" and sometimes as a "hot" one. Our motives have been, and are, to keep American medicine and all other private enterprises free, and to this end we have spoken out as best as we can, political amateurs though we may be. Sometimes, if not too often, editorial opinion differs sharply with yours; i.e., (from U.S.A. Magazine — December, 1960): ". . The American Medical Association has conducted a staunch fight to protect the American people against Socialist ownership of our government, and . . has been a major factor in the preservation of our individual freedom."

May we respectfully suggest, Mr. Editor, that you give equal time to exposing the background and motivation of the individuals and organizations who *favor* Social Security medicine? Some of them also take to the idea of press censorship and so on, and perhaps if they seem less "pompous" to you in their attitudes than we, they will be found also less forthright in pleading their case and more devious in seeking to attain their objectives. Quite a number of them, I might add, are said to be a lot closer to the White House than the A.M.A. will ever get. For us, the winning of votes and ascension to political power hold no attraction whatever, but the preservation of individual freedom still holds an immeasurable one.

III. YOU SAY: "ONCE AGAIN THE A.M.A. HAS SOUNDED THE TOO-FAMILIAR ALARM. IF MEDICAL CARE FOR CITIZENS OVER SIXTY-FIVE IS FINANCED THROUGH THE SOCAL SECURITY SYSTEM (IT SAYS), . . WE ARE HEADED TOWARD SOCIALIZED MEDICINE. TO US, THIS SEEMS RANKEST SORT OF NONSENSE."

We reply: Regardless of our opinion on this, haven't you heard that the Socialist Party of America says the administration's eldercare proposal *is* socialized medicine? The American Medical Association does not use these words in derogation of a socialist system per se. Rather, its warning is directed against the substitution, without cause or need, of an inferior, monolithic brand of medical care for the superior, progressive one we now have. We observe that you offer no evidence whatever in support of your contention; you simply label the A.M.A.'s position "the rankest sort of nonsense", and let it go at that. Shades of President Kennedy and Mr. Ribicoff! But at least they probably have read through the King-Anderson Bill, whereas we doubt your editorialist has. The most casual examination of HR 4222 will reveal that the word "regulation" appears at least once in almost every paragraph, and each control would apply as stringently to the recipients of benefits as to the providers of medical services. There is in this bill no definition of the obligations of a third party agency to its policyholders, such as we find in voluntary health insurance contracts. There is in it, instead, only a series of statutes under which, through loose interpretation, the government—indeed the Secretary of HEW, by himself—can mold the future of American medicine to suit his will. Doctors aren't socialists, Mr. Editor, but Socialists are and *they* know what they've talking about. Think it over, won't you?

IV. YOU SAY: "A.M.A. DOES HAVE ONE SOLID POINT IN THE CURRENT DEBATE WHICH, SURPRISINGLY, IT HAS UNDERPLAYED." . . . "MONEY AND BUILDINGS CAN'T PRACTICE MEDICINE. ONLY DOCTORS CAN DO THAT — AND EVEN THEY CAN'T DO IT VERY WELL UNLESS THEIR HEARTS ARE IN IT." IF THE A.M.A. EMPHASIZED THIS POINT, YOU "MIGHT BE WITH THEM."

We reply: If you are suggesting what it appears you are, we would much prefer that you remain neutral in this matter much as we would like your support. Perhaps you have read about doctors striking against their governments in Italy, Yugoslavia, France, Japan and elsewhere around the world. It is reported that during at least one of these professional "walkouts", several people died unattended. Mr. Walter Reuther and others have sometimes wryly observed that doctors are missing the boat in not putting this kind of pressure on; by not making capital of the obvious fact which you call a "solid point in the current debate"; by not threatening their opponents with dire consequences if social medical legislation is passed. Mr. Editor, the American people are not our opponents. They are our patients, and we have pledged that not one of them need go without medical care, whether they can pay for it or not. As American physicians, whatever our reaction might be to enactment of this radical legislation, it would not be to break this pledge by withholding our services from the people. If this is a weakness in our position, then so be it.

V. YOU SAY: "TRADITIONALLY MEDICINE HAS SPOKEN THROUGH ITS CHOSEN INSTRUMENT, THE AMERICAN MEDICAL ASSOCIATION – ALTHOUGH A GOOD MANY DOCTORS DO NOT BELONG OR BELIEVE IN THEIR OWN ORGANIZATION. LAMENTABLY, THE A.M.A. HAS DONE PRECIOUS LITTLE TO MAKE US PATIENTS FEEL THAT MEDICINE IS ON OUR SIDE."

We reply: We make no claim that every last doctor agrees with the A.M.A. in all its policies, but may we suggest you stop in unannounced at a general membership meeting of a constituent county or state medical association almost anywhere across the country and ask for a show of hands on this question. Secretary Ribicoff's "secret files" notwithstanding, the A.M.A. has the full support of a large majority of its members and the minority is free to speak out as it wishes, albeit as individuals.

This is not the place to recount the myriad of outstanding contributions the A.M.A. has made toward promoting the public health and advancing the science and art of medicine, nor to refute the ridiculous and false charges which have so often been made against it. May we point out, however, that our national organization does not practice medicine and that it has no personal contact with patients. It is therefore up to the individual practicing physician "to make us patients feel that medicine is on our side." As long as patients remain free to choose their own doctor, we believe most of them should have no doubts as to whose side medicine is on.

VI. YOU SAY: "WE CERTAINLY WOULD BE WITH THEM (THE A.M.A. PEOPLE) IF THEY CAME UP WITH A COUNTERPROPOSAL, ACCEPTABLE TO DOCTORS, THAT WOULD DO THE JOB THE PRESIDENT ENVISAGES." . . ". . THE A.M.A. SEEMS TO HAVE CONFUSED WHERE WE WANT TO GO WITH HOW WE'RE GOING TO GET THERE." . . "WE CALL ON YOU MEMBERS OF THE A.M.A. FOR . . STATESMANSHIP." . . "HOW ABOUT IT, DOC?"

WE reply: Here again, it seems to us, you have indulged in the loosest of *non sequitur* speculation. The very point—the very heart—of our whole argument is what "the President envisages" as a "job" to be done. We certainly *do* know where this eldercare proposition will take us, and we are *not* confused about how "we're going to get there". A radical breakthrough to finance medical care for the aged as an extension of the Social Security mechanism will lead to the financing of medical care for everyone—a compulsory national health service, such as they have in Great Britain. And by the way, *they* freely admit it is socialized medicine. With all due respect to the President, it is our opinion that either he does not understand or will not admit what the ultimate and inevitable consequences of HR 4222 will be, once it is passed. Quoting Senator Robert S. Kerr of Oklahoma, a life-long Democrat: "There has been more misrepresentation made about . . the King-Anderson Bill than anything I have ever heard of. ." Outlining the provisions and potential for helping those who need help under the already enacted Kerr-Mills Law, Senator Kerr says: "Not one of these things can be said for the King-Anderson program, not one of them." He says further: "The least we can do is to be honest with 16½ million aged people.", and ". . if the Congress of the United States just one time passes a bill that links health or medical care with the Social Security system, the battle against socialized medicine will be lost for our lifetime."

The questions seem to be, Mr. Editor: Do the people really "want to go" where the administration seems bent on leading them, and do they really understand where moving in that direction will take them? If they do, on both counts, then it should be clear to them, as it is to us, that the quickest way "to get there" is to have HR 4222 passed today so that its expansion toward government medicine for all can be started tomorrow. Talk to former Congresman Aime Forand and Undersecretary of HEW Wilbur J. Cohen about this. They will agree with us in our conclusion here. They've already said so!

As you say, voluntary health insurance has made and is making great strides in offering medical cost protection to the young and to the aged as well. This is the direction in which American medicine wants to move, supplemented where necessary by such tax-supported measures as Old Age Assistance, state-administered Kerr-Mills programs, Medicare for the dependents of military personnel, out-patient services of the Veterans Administration and Blue Shield as it applies to all who have limited incomes. We doctors have for years been subsidizing these programs, either all or in part, so that medical care for the majority could be kept free of government control. This, we suggest, has been and *is* leadership (or statesmanship, if you will), and we suggest it despite your expressed doubts in the matter.

In a nutshell, I guess our position is that we should all look very carefully at the kind of medical care we have now and decide if, despite its possible shortcomings at any given moment, we really want to change it radically. We doctors have looked and decided. Now it's up to the American people and their representatives in Congress. The A.M.A. can only give its views, and act as a sort of medical conscience. It has neither the numbers, the money nor the influence to block legislation of the King-Anderson type if it is the informed will of the public that it be adopted.

Sincerely yours,

WILLIAM R. RICHARDS, M.D.
General Manager.

FROM THE GENERAL MANAGER'S OFFICE

William R. Richards, m.d., *General Manager*

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Assistant to General Manager

CALL

ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1962 Annual Meeting of the House of Delegates will be held at the Statler-Hilton Hotel, Hartford, commencing at 10:00 o'clock in the morning of Wednesday, May 2.

Following luncheon, the House will reconvene for the completion of business.

Thomas M. Feeney, President
Orvan W. Hess, Secretary
William R. Richards, General Manager

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that: (New Bylaws which go into effect at 8:00 A.M. on May 2, 1962)

All resolutions to be considered as regular business at any regular meeting of the House of Delegates must be in the hands of the Speaker not later than seventy-two hours before the opening of that meeting. All resolutions and recommendations published in the official agenda distributed to the members of the House prior to the meeting at which action is to be taken shall be considered as regular business. Resolutions presented later than seventy-two hours before the opening of a meeting will be referred for consideration as regular business by the House only when they are presented by the Council or accepted for consideration by majority vote of the delegates present. Any resolution which does not qualify in accordance with the aforesaid provisions for consideration as regular business may be accepted for action by a majority vote of the delegates present and, if so accepted, shall be referred at once by the Speaker to a reference committee. Any such reference committee shall consider resolutions referred to it and shall report, with recommendations, to the House before adjournment of the meeting.

Delegates To Annual Meeting

The Bylaws of the Society provide that each county association is entitled to one delegate in the House of Delegates for each thirty-five members in the association or fraction thereof based on the membership as of December 31st of each year. According to this, the quota of delegates from each county association who should attend the Annual Meeting of the House of Delegates which will be held in Hartford, May 2nd and the Semi-Annual Meeting in December is as follows:

County	Membership Dec. 31, 1961	Official Delegates
Fairfield	894	26
Hartford	1031	30
Litchfield	135	4
Middlesex	126	4
New Haven	923	27
New London	180	6
Tolland	23	1
Windham	66	2

Election Or Councilors And Associate Councilors

Councilors and Associate Councilors should be elected for a term of two years at the annual meeting of the county associations this year in Fairfield, Litchfield, New Haven and Tolland counties. No Councilor or Associate Councilor elected by a county association shall serve more than three successive terms of two years each in his respective Office, but after a lapse of one term of two years, such Councilor or Associate Councilor may be eligible for re-election.

In the revised Bylaws, which go into effect at 8:00 A.M. on May 2, 1962, provision is made for each component association having over 750 members to elect one additional Associate Councilor. Therefore, Fairfield and New Haven County Medical Associations should elect a Councilor and two Associate Councilors for a two year term; and Hartford County, not normally electing Councilors in 1962, should elect one additional Associate Councilor for a one-year interim term. Additional

Associate Councilors shall not assume office until after the Annual Meeting of the House of Delegates, as they are not provided for in the present Bylaws, which will be in effect until May 2.

After the new Bylaws go into effect on May 2, all future Councilors and Associate Councilors shall not assume office until after the annual meeting of the House of Delegates.

COUNCIL MEETING

Wednesday, January 27, 1962

A meeting of the Council was called to order by the Chairman, Dr. Gilman, at 3:00 P.M. on Wednesday, January 17, 1962. Present in addition to the Chairman were: Drs. Feeney, Deming, Goldberg, Hess, O'Connor, Cullen, Gardner, Ogden, Cornwell, Rentsch, Bradley, Murray, Gorman, Gevalt, Egan, Phillips, Hastings and Chartier. Also present: Mrs. Lindquist, Mr. Burch, Dr. Richards. Absent were: Drs. Caplan, Scully, Wilson, Katzin, Grant, Purnell and Martin.

The minutes of the Council meeting of November 1, 1961, were approved as printed.

DUES EXEMPTIONS.

a) It was Voted to exempt from payment of dues in 1962, and for the duration of his physical disability, Carl E. Johnson, New Haven.
b) It was VOTED to exempt from payment of dues in 1962, and for the duration of his physical disability, Franklin M. Goodchild, Willimantic.
c) It was VOTED to exempt from payment of dues in 1962, and for the duration of his physical disability, William F. Burke, Newtown.

The General Manager was directed to inform these physicians of this action of the Council, and advise them that the period of exemption was intended to last "unless and until they were able to resume practice."

COMMITTEE RESIGNATIONS, VACANCIES AND APPOINTMENTS.

a) Committee on Eye Care—It was VOTED to accept the resignation of Joseph L. Hetzel, Waterbury, from membership on this committee.
b) Committee on Mental Health—It was VOTED to request the Chairman of this committee to recommend a physician to fill a vacancy created by the withdrawal from the committee of an incumbent member.
c) Committee on Accident Prevention — It was VOTED to appoint Arthur D. Keefe, Hartford, an additional member of this committee. It was further VOTED to transmit Dr. Keefe's name to the nominating Committee for possible nomination to the 1962-63 committee.

APPROVAL OF EXPENDITURE FOR MEETING EXHIBIT. It was VOTED to authorize payment of $295 from the Annual Meeting Surplus Fund to the manufacturer of an exhibit purchased for use at future meetings of the Society. The exhibit bears the name and seal of the Connecticut State Medical Society.

PUBLICATION AND DISTRIBUTION OF THE REVISED BYLAWS. It was VOTED to publish and distribute copies of the revised Bylaws to all members of the Society as a supplement to Connecticut Medicine, and to retain at the General Manager's office sufficient additional copies for future use by county associations, committees, etc. It was further VOTED to approve the expenditure of an estimated $285 for printing and mailing costs associated with this project, on the basis of 4,000 copies.

PHYSICIAN AWARD FOR COMMUNITY SERVICE. Concerning this proposal, it was VOTED to accept the recommendation of the Committee on Public Relations that "such a project would not be advisable at this time".

CONNECTICUT CONGRESS ON MEDICAL QUACKERY. On the recommendation of the Committee on Public Relations, it was VOTED to appoint a committee consisting of Max Caplan, Meriden, Chairman, Martha Clifford, Hartford, Kirby S. Howlett, Jr., Shelton, Robert R. Levin, Hartford, J. Harold Root, Sr., Watertown, Benjamin Rosenthal, Milford, Robert Rogers, Greenwich, Robert W. Shreve, West Hartford, Wilson F. Smith, Hartford, Levin Waters, New Haven, such committee to meet with representatives of other health agencies concernd with the subject of medical quackery for the purpose of developing a detailed plan to conduct a "Congress" of this nature for submission to the Council. The committee is to be guided in its deliberations by the following recommendations of the PR Committee:

"The Committee recommends that a Connecticut Congress on Medical Quackery be planned under the following provisions: 1) That the Society consult with legal counsel concerning insurance coverage against libel and slander. 2) That attendance at the Congress be by invitation. It should *not* be open to the general public. 3) That a joint advisory committee of representatives from interested agencies be formed to explore and activate this project."

CONNECTICUT CONFERENCE ON HEALTH INSURANCE AND PREPAYMENT PLANS. This item was considered and acted upon under Item No. 19 of these minutes.

COMMITTEE ON PUBLIC HEALTH.

a) It was VOTED to approve the opinion of the Committee on Public Health that "the Connecticut State Department of Health should *not* stop doing premarital blood tests."
b) It was VOTED *not* to request the Cancer Coordinating Committee to formulate an official policy for the Society on the possible relation-

ship between cigarette smoking and carcinoma of the lung.

c) It was VOTED to refer back to the Committee two resolutions pertaining to school health and physical fitness programs for further study and resubmission to the Council. The Advisory Committee on School Health, which had prepared these resolutions, will be asked to take into account the remarks of several discussant voiced during Council consideration of this matter.

d) It was Voted to adopt a resolution on the use of automobile seat belts, proposed by this Committee and also by the Committee on Accident Prevention. As adopted, the two resolutions were combined to read as follows:

"RESOLVED: That the Council of the Connecticut State Medical Society urge very physician in Connecticut to install and use seat belts in his car as a safety measure for himself and his family, and as an example to his patients."

It was further VOTED to publicize this resolution to physicians through "CONNECTICUT MEDICINE" and to inform interested state officials of this action.

COMMMITTEE ON NATIONAL LEGISLATION. It was VOTED to accept, with regret, the resignation of Clifford W. Mills, Norwalk, as Chairman of this Committee. It was further VOTED to appoint Ellwood C. Weise, Sr., Bridgeport, to membership on the Committee on National Legislation and also as its chairman during the remainder of Dr. Mill's 1961-62 term.

AMA NATIONAL LEGISLATIVE CONFERENCE. It was VOTED to request the General Manager and the new Chairman of the Committee on National Legislation, Dr. Weise, to attend this AMA Conference as representatives of the Society, and to invite at least one other member to attend at AMA expense. Several physicians were named to be invited, and the General Manager was directed to determine from them if they are willing and/or able to go to Chicago on January 26-27th.

CONNECTICUT MEDICAL SERVICE, INC.

a) The Council received as information a news report from Rhode Island which relates to the nationally expressed philosophy that physicians should be in numerical minority on the boards of directors of Blue Shield plans, or even be excluded from such boards altogether. The item stated that: "Governor John A. Notte, Jr., of Rhode Island (had recommended) that control of the Physicians' Service board of directors be given to public representatives." An editorial appearing in the Rhode Island Medical Journal offered the opinion that if this were done: "so many physicians would withdraw from the program of providing service to under-income subscribers that the program will be unable to operate in its present form."

b) The Council received as information copies of a memorandum, dated November 22, 1961, from Mr. John Coolidge, President of CMS, Inc. to all members of the Board of Directors. Outlining certain plans for changing and expanding certain existing contracts, Mr. Coolidge indicates he expects all members of the Board to "support any reasonable proposal that is approved by the Insurance Commissioner which will enable us to more nearly achieve our original aim of 50 per cent Service Benefits."

c) Nomination of CMS Directors: As provided for in Art. 1, Sec. 1 of the CMS Bylaws, the Council was asked to nominate four Participating Physicians for two year terms to serve as members of the CMS Board of Directors, such nominees to be elected at the Annual Meeting of the Corporation which will be held on February 20, 1962.

The following physicians were nominated:

Willard E. Buckley, Middletown
Francis Gallo, Winsted
Elwood K. Jones, Bridgeport
Frank L. Polito, Torrington

d) The Council was informed that a joint AMA-National Blue Shield announcement was expected to be made on January 18th, which would concern a proposal for the development of a national low-cost, low-income, reduced-fee contract for those people 65 years of age and older who were eligible. No details of the proposed plan were available, but mention was made that the Special Individual Contract had been offered continuously to all Connecticut Residents by CMS, Inc., since 1959, and that 116,000 over-65 members were presently enrolled with CMS.

"STANDARDS AND RECOMMENDATIONS FOR ANTEPARTUM AND POSTPARTUM CLINICS." It was VOTED to approve the report of the Committee on Maternal Mortality and Morbidity titled: "Standards and Recommendations for Antepartum and Postpartum Clinics" as a *guide* for such clinics throughout the state.

LILLY STATE MEDICAL CONVENTION PROGRAM GRANTS. Eli Lilly and Co., has expressed a desire to make a grant to the Annual Meeting in lieu of renting exhibit space. It was VOTED to request the Lilly Company to consider sponsoring an exhibit booth, in which non-profit health agencies such as the Connecticut Heart Association, the Department of Health and others might put on "live" exhibits: i.e., electrocardiography, blood sugar determinations, etc., performed gratis for physicians attending the meeting. Appropriate acknowledgment of the Lilly sponsorship would be made.

COMMITTEE ON HOSPITALS. A series of recommendations by the Committee on Hospitals were acted on as follows:

a) Regarding investigation of an instance in which a physician alleges he has been denied hospital privileges, it was VOTED to accept the Committee's recommendation that no further action be taken, 1) until the physician has applied again for privileges at the hospital in question, and also makes application for membership in his local (city) medical society and 2) unless the physician subsequently reports unfavorable treatment of one or both of these applications. The physician is to be notified of these recommendations.

b) Regarding a Resolution from the Connecticut Society of Pathologists concerning the professional status and present remuneration of certified medical technologists, it was VOTED to adopt the following resolution as a substitute for the one approved by the Committee:

"BE IT RESOLVED: That the Council of the Connecticut State Medical Society commend the Connecticut Society of Pathologists for its efforts to advance the recruitment, education and professional competence of Medical Technologists and recognize certified Medical Technologists as important, essential members of the health care team, and be it further

RESOLVED: That the Council of the Connecticut State Medical Society hold the opinion that individual compensation for medical and para-medical services, as for all others under a free enterprise system, should reflect the relative value of such services as determined in the community area of their performance.

The Connecticut Society of Pathologists and the Connecticut Hospital Association are to be notified of this action.

c) It was VOTED to adopt a Resolution on Smoking in Hospitals, approved by the Committee, which reads as follows:

"BE IT RESOLVED: That the Connecticut State Medical Society urge that smoking by doctors, nurses, patients, hospital personnel and visitors be prohibited except in areas designated by the hospital and medical staff."

Report of this action is to be sent to medical staffs and hospital administrators.

d) It was VOTED to authorize Maxwell O. Phelps, Hartford, to assist the Chairman, Dr. Trifari, in representing the Society on Commissioner Foote's committee to plan a study of regulations for licensing small hospitals.

e) It was VOTED to authorize the Committee to join with the CHA's Council on Professional Practices in planning and conducting a "Symposium on Emergency Room Utilization" in the spring of 1962, it being understood that necessary funds for this project are covered by the Committee's 1962 budget allotment.

f) It was VOTED to authorize the Committee to join with the CHA's Council on Professional Practices in following up the initial steps taken last spring to foster an "optimal utilization of hospital facilities" study, and to request the two committee groups to consider the advisability of planning and conducting jointly a "Symposium on Optimal Utilization of Hospital Facilities" sometime later this year or when deemed appropriate.

ALLEGED DENIAL OF HOSPITAL PRIVILEGES. It was VOTED to refer to the Committee on Hospitals a request for review and advice regarding a physician's inability to obtain courtesy privileges at a general hospital in his area. The Committee is asked to study this situation and report its findings and recommendations to the Council.

CONNECTICUT KERR-MILLS PROGRAM, P.A. NO. 578. Reporting on steps being taken to implement P.A. No. 578 on April 15, 1962, Thomas M. Feeney, Hartford, advised the Council as follows:

a) The Connecticut program has not yet been approved by the Department of Health, Education and Welfare, but Commissioner Shapiro of the State Welfare Department is confident that it will be approved without difficulty in the near future.

b) A payment schedule for physicians' services, both in and out of the hospital, is to be established by the Commissioner of Finance and Control, who will meet with the Society's Advisory Committee to the Commissioners of Welfare, Finance and Control on Janaury 25th to begin preparation of the schedules. Since the Society's Committee is made up largely of general practitioners, it was VOTED to advise the Committee of the desirability of consulting freely with representatives of the various types of specialty practice, in order that the schedules may be as equitable and satisfactory as possible. It is understood that physicians will partially subsidize the program voluntarily, through "reduced fee" schedules.

c) The Committee to Develop an Aged (Kerr-Mills) Medical Plan in Connecticut having completed its assignment, it was VOTED to discharge the Committee with thanks and commendation.

COMMMITTEE ON REHABILITATION. It was VOTED to authorize this Committee to establish liaison with the Connecticut State Bureau of Vocational Rehabilitation, James S. Peters, II, Bureau Chief.

FOUR AGENCY CONFERENCE. It was Voted to authorize the President to call a second meeting of the so-called "Four Agency Conference Group" (CSMS, CHA, Blue Cross and Blue Shield), with the Society acting as host and being responsible for attendant expenses. It was the unopposed opinion of many Council members that a fifth agency should be added to the conference group, preferably the Health Insurance Council. It was suggested that the principal subject for the agenda might well be a proposed Connecticut Conference on Medical Care, Health Insurance and Prepayment Plans, as recommended by the Committee of Past Presidents and County Secretaries and approved by the Committee on Public Relations. It was VOTED that the President and the General Manager develop the agenda for the upcoming meeting.

AMA COUNCIL ON MEDICAL EDUCATION AND HOSPITALS. Ellwood C. Weise, Sr., Bridgeport, submitted a report on the attendance of Vincent A. Gorman, Bridgeport, Howard J. Lockward, Manchester, and himself at a liaison meeting between New England state societies' representatives and members of the AMA Council on Medical Education and Hospitals. It was VOTED to request Dr. Weise to summarize the report and to submit the summary to the Literary Editor of Connecticut Medicine for possible publication.

It was further VOTED to refer the matter of whether the Society should establish a state-level Committee on Medical Education and Hospitals, as recommended in the report, to the existing Committee on Postgraduate Education for study and report to the Council.

SEMI-ANNUAL MEETING — COUNCIL OF N.E. STATE MEDICAL SOCIETIES. It was VOTED to accept as information the report of the Delegates to the N.E. Council on their attendance at the semi-annual meeting of that organization. Since, under the revised Bylaws, this Society will no longer elect representatives to the New England Postgraduate Assembly after May 2nd of this year, it was VOTED to inform the New England Council that the Society's three delegates to the N.E. Council may be consulted on matters pertaining to the Postgraduate Assembly.

EDITOR OF CONNECTICUT MEDICINE. Having determined that when the revised Bylaws become effective on May 2, 1962, and thereafter, the Council must "elect" an Editor, it was VOTED to request the Council's Nominating Committee to bring in a nominee for the post of "Editor of Connecticut Medicine" in order that, to assure uninterrupted supervision of the Journal, the Council may consider making a recommendation that, on this first occasion, the House of Delegates "elect" the Editor at its 1962 annual meeting.

LETTER ON NUTRITION TO THE SECRETARY OF HEW. Having considered a "letter on nutrition" to the Secretary of Health, Education and Welfare, drafted by the Advisory Committee on Nutrition and approved by the Committee on Public Health, it was VOTED to table action on this matter.

CONNECTICUT RED CROSS BLOOD PROGRAM. It was VOTED to refer to the Committee on State Blood Bank a letter from J. C. Early, M.D., Director of the Connecticut Red Cross Blood Program. Dr. Early's letter concerns efforts to bring about greater participation of physicians in the Blood Program, and the Committee on State Blood Bank is asked to consider the points outlined by Dr. Early and make recommendations to the Council as to how these may be activated and implemented at state, county and local levels.

COMMITTEE ON RELATIVE VALUE STUDY. It was VOTED to approve a proposal of the Chairman of the Committee that a Relative Value Survey be conducted using a nomenclature of about 750 procedures. In view of the somewhat variable estimates of the final costs, and recognizing the unpredictability of such factors as how many members of the Society will respond, it was VOTED to inform the Committee's Chairman that any agreement with the professional agency conducting the study must contain a "maximum cost" provision, such maximum cost *not* to exceed the limits of funds presently appropriated for this purpose.

STUDENT MEMBERS. It was VOTED to elect five eligible students to student membership in the Society. List follows these minutes.

CONFERENCE OF PRESIDENTS. It was VOTED to authorize payment of annual dues of $75 to the Conference of Presidents and Other Officers of State Medical Associations.

PURCHASE OF EDUCATION FILMS.

a) It was VOTED to increase the 1962 budget allotment of the Committee on Rehabilitation by $150, in order that an educational film titled: "Rehabilitation Adds Life to Years", may be purchased for showings under the direction of the Committee.

b) It was VOTED to increase the 1962 budget allotment for the PR Department for the acquisition and showing of films by $200, in order that a British Broadcasting Company film titled: "On Call To A Nation" may be purchased. This documentary on socilaized medicine in England has been requested for showing to the student body at the Yale School of Medicine and by the Blue Shield Professional Relations Committee in the New England area. It is thought to be suitable for showing at meetings of county and local medical groups also, and might possibly be used on television as well.

CUBAN MEDICAL REFUGEES. It was VOTED to send a letter addressed to Phillip M. Cornwell, Councilor from the Hartford County Association, to the Committee on Medical Education and Licensure for study and report. The letter concerns the possibility of suspending or modifying certain of the regulations pertaining to licensure of graduates of foreign medical schools in the case of qualified Cuban refugee physicians.

DIXWELL COMMUNITY COUNCIL — HEALTH SCREENING PROGRAM. It was VOTED to refer a letter addressed to the President to the New Haven County Medical Association for consideration and reply. The letter is signed by William Massie, M.D., Chairman of the Health Commission of the Dixwell Community Council, and concerns clearance of the Health Screening Program proposed and a request for information which would be helpful in promoting the project.

DATE OF NEXT MEETING. It was VOTED to hold the next Council meeting on Thursday, February 15, 1962.

Student Members Elected

Marlene A. Aldo, Bridgeport,
University of Vermont, College of Medicine.
George E. Houze, Trumbull,
Queen's University.
George L. Morann, New Haven,
Albert Einstein College of Medicine.
Robert Resnik, New Haven,
Western Reserve University.
Hipolit P. Winalski, Wethersfield,
Creighton University.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Wanted—Turhan Uysal, Age 33—M.D. Ankara University, Ankara, Turkey, 1954. Specialty partnership practice in general surgery.

Wanted—Bruce K. Willitts, Age 31—M.D. Western Res. University 1956. Specialty, obstetrics-gynecology. Available July 1962.

Wanted—Clement J. Philbrick, Age 31 — M.D. Tufts University 1955. Specialty obstetrics-gynecology.

Wanted—Jurgen Fischer, Age 31—M.D. Medical School Hamburg University. Specialty internal medicine.

Wanted—Robert B. Rowed, Age 46—Interested in general surgery, orthopedics, and hospital work.

ANY MEMBER OF THE SOCIETY KNOWING OF AN OPPORTUNITY FOR PLACEMENT OF THE ABOVE PHYSICIANS, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

1962 MEETINGS

March 21—The Greater Bridgeport Heart Association, Inc., announces Scientific Session at Bridgeport Hospital auditorium, 1 to 5 P.M.

March 22—178th Annual Meeting of the New Haven County Medical Association will be held at Waverly Inn, Cheshire. The Business Meeting is scheduled for 2:30 P.M.

April 11—Symposium on The Newborn Infant, to be held at the Hospital of St. Raphael, New Haven.

May 2-3-4—Annual Meeting Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

May 3-4—New England Health Education Association — Spring meeting — Andover Inn, Andover, Mass.

May 18-19 — Connecticut Society American Board Obstetricians and Gynecologists Travel Club meeting in Montreal.

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

MEDICARE POLICY

Your attention is called to a problem which has been encountered in several instances since the advent of the Medicare Program. This concerns situations where two physicians have submitted charges as attending physician for care of the same patient for the some condition at the same time. Under the terms of the Medicare contract with the Connecticut State Medical Society, both physicians may not be paid, unless there is a need for supplementary skills. Consultations comprising a single visit are allowable. Where subsequent or continuing care by the consultant is required, the contract allows for payment of only one physician.

In order to avoid this problem, each physician rendering care to patients under the Medicare Program is advised to establish his individual role as attending or consulting physician.

ROBERT W. HART, M.D.
Acting Coordinator Medicare Committee,
Connecticut State Medical Society.

Removal Of Non-Absorbable Surgical (Silk) Corneo-Scleral Sutures

Charles T. Meacham, M.D.
Stamford

Introduction

It is well known that the task of removing silk corneoscleral sutures can be difficult, troublesome, dangerous, and with severe complications. Some surgeons dread it so much that they have turned to the use of absorbable (gut) sutures, or simply let them slough out. This latter alternative will result in no harm in many cases; but immediate removal is imperative if a stitch abscess or infection threatens to develop, or if there are signs of aqueous leaking from a too deeply placed suture such as a flat or shallow anterior chamber. If, however, all is well, the usual time for removal (11th to the 14th postoperative day) can be postponed in a nervous, uncooperative patient to the third week, or to be allowed to slough out with no ill effects.

My preference of silk over gut is based on the following reasons:

1. It is easier to tie and handle and is more flexible and finer.
2. The knot is smaller than gut knots, and above all, silk is less likely to slip.
3. Being black it is more easily seen and identified, consequently is less likely to be cut, or the ends lost in a tangle of multiple suture arms.
4. Silk causes less reaction (though some will deny this).
5. Gut may linger unabsorbed 21-30 days, thus increasing the possibility of developing a stitch abscess. This persistence is especially noticeable in corneal suturing; so I have discontinued their use in corneal wound repair—even in children.

Complications

1. Wound rupture: This is caused by the trauma of awkward instrumentation in lid squeezure or sudden movements during the procedure. This latter is especially apt to happen in an improperly prepared patient. It is wise, therefore, to explain what is to be done and give warning as to his proper cooperation.
2. Infection: This ranges from corneal abscess to panophthalmitis and can follow down suture tracts after removal in rare instances.
3. Loss of anterior chamber following the removal of a too deeply placed suture.

Removal Of Sutures

Regardless of whatever method or instrument is used for removing sutures the first thought should be directed toward obtaining adequate anesthesia. Topical instillations are usually sufficient but are inadequate for the highly apprehensive patient. In such cases a good method is to clean off all mucous with a cotton swab, then apply powdered cocaine or tetracaine directly on the suture and allow to dissolve washing off the excess (Kirby[1]). In some cases it is advisable to use sedation, tranquilizers, and/or akinesia before starting. Numerous techniques and instruments have been proposed such as:

1. Toothless forceps for grasping and using sharp pointed scissors, or knife (Wilson[2]), or a piece of razor blade held in a needle holder (Malbran[3]).
2. Scissors alone.
3. DeWecker (Stallard,[4] and Esposito[5]), sharpened pointed Westcott or Iris scissors (Curtin and Boyes[6]), and Harrison scissors.[7]

Presented at the Annual Meeting of the Cornell Eye Residents Association.

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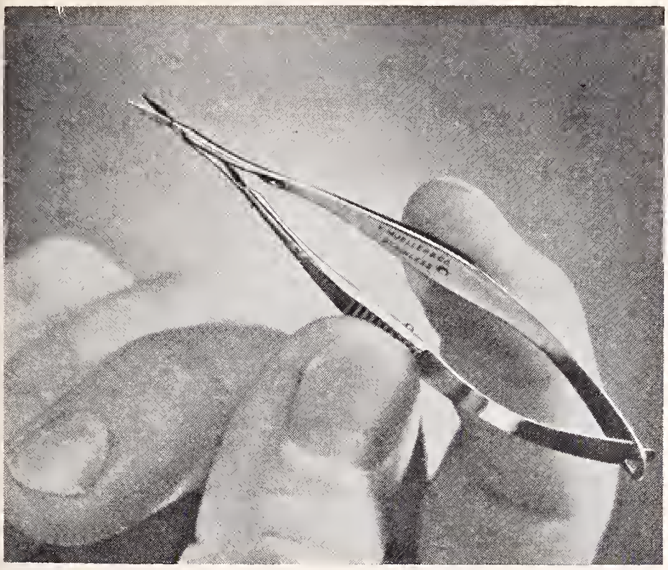

4. Patient in bed with head elevated to about 40 degrees and with pillows on each side of the head. The surgeon facing the patient rests his arms and wrists on the pillows while the assistant elevates the upper lid (Simonton and Blaydes[8]).

Some years ago I sought an easier and safer way of removing sutures. First I tried using scissors without the aid of forceps. For this purpose very fine bladed cuticle (manicuring) scissors were found satisfactory except for the apprehensive and uncooperative patient. Next was the attempt to untie the suture knot. This was found easy to do with jeweler's fine pointed forceps except in the case of very tight and deeply buried knots. However, noting the ease with which the suture could be grasped with these forceps, I conceived the idea of scissors which would give the same feel and ease of handling — delicate narrow bladed ones with spring action handle. Vannas (straight)) capsulotomy scissors met these requirements.

My method is to stand in front and a little to the right of the patient who is tilted back somewhat in a chair and looking downward. Tetracaine drops are instilled and while the upper lid is held elevated with the left thumb, it is usually easy to pass one blade through the suture loop and quickly sever it. In so doing, the scissors blades are held barely open and are always pointed in an upward direction so as to avoid getting caught or tangled in the suture in case of unexpected movements. If the eye suddenly rolls up, the suture usually glides off the blades, thus avoiding pain and danger of opening the incision. The advantages are safety, speed, and more comfort to the patient, since there is little likelihood of pulling on the suture to cause pain. Vannas scissors are so easy to handle that one can use them with skill and efficiency on the very first try.

Conclusion

I believe that we have in the Vannas scissors a solution to most of our difficulties in removing corneo-scleral sutures; consequently there is no need to give up the use of silk.

REFERENCES

1. Kirby, D. B.: Prevention and handling of complications arising during and after cataract extraction. Arch. Ophth., 25: 866, May 1941.

2. Wilson, Peter: Removal of corneo-scleral sutures. Brit. J. Ophth., 42: 248-250, April 1958.

3. Malbran, Jorge: Removal of corneo-scleral sutures. Am. J. Ophth., 44: 427, September 1957.

4. Stallard, H. B.: Modern trends in ophthalmology. Arnold Sorsby, Editor. New York, Hoeber, 1955, p. 283.

5. Esposito, Albert C.: DeWecker scissors in removing corneoscleral sutures. Am. J. Ophth., 46: 587, October 1958.

6. Curtin, B. J. and Boyes, T. L.: The removal of sclerocorneal sutures. Am. J. Ophth., 42: 421, September 1956.

7. Harrison, W. J.: Instrument for removal of sutures. Am. J. Ophth., 35: 1207, August 1952.

8. Simonton, J. T. and Blaydes, J. E.: Am. J. Ophth., 45: 111, January 1958.

9. Meacham, C. T.: Vannas scissors for removing corneoscleral sutures. Arch. Ophth., 61: 654, April 1959.

Lessons In Obstetrical Complications

NOTES ON TOXEMIA OF PREGNANCY

From The Subcommittee On Toxemia

Franklin H. Epstein, m.d.
Clarence D. Davis, m.d.
New Haven

The Patient

The patient, a 28 year old housewife, gravida 2, para 1, was seen for the first time in the third month of her second pregnancy. Three years previously she had delivered a baby weighing 5 lbs. 11 oz. Though the delivery was normal, the pregnancy had been complicated by high blood pressure and edema, and the placenta was said to have been infarcted.

At the 9th week of pregnancy, BP was 134/96, weight was 143 lbs., and urine was negative for sugar and protein. The blood pressure remained elevated throughout pregnancy, although the patient was generally asymptomatic. At 13 weeks the blood pressure was recorded as 130/90, at 21 weeks 142/90, and at 31 weeks at 169/100. Reserpine was prescribed at 31 weeks but the patient was not seen again until five weeks later. By that time edema of the ankles had appeared and, although previous examinations of the urine had showed no protein, proteinuria was now 2+.

She was admitted to the hospital on the next day. Blood pressure was 170/108. Urine specific gravity was 1.020; albumin 2+; sediment showed 3-5 rbc and no casts. Hemoglobin was 11.7 grams per cent. WBC was 6,500. Blood urea nitrogen was 16 mg. per cent; uric acid was 3.6 mg. per cent.

In the hospital the patient was treated with intramuscular reserpine, 2.5 mg. every 12 hours, chlorothiazide and compazine.

On the day following admission the blood pressure was 162/96. Vaginal spotting began on admission, which continued throughout the next two days. On the following day no fetal heart sounds were audible. Examination revealed a cervix which was long and thick but soft. It was decided to induce labor. At 2:40 p.m. patient was given demerol 50 mgm., sparine 50 mgm., and vitamin K10 mgm. At 3 o'clock 500 cc 5 per cent glucose in water with one ampule of Syntocin was started slowly.

The patient had a fast labor, lasting only two hours and 15 minutes. At 3:15 the blood pressure was 154/92 and at 5:12 a low forceps delivery was performed of a stillborn infant weighing 3 lbs. 4 oz. The placenta was delivered three minutes later and appeared to be small with many large white infarcts. Following delivery one ampule of ergotrate was given I.M. and one ampule I.V. and 3 cc of seconal were were given I.V.

The patient is said to have done well following delivery. She was discharged on the third day post partum.

Comment

Because of the past history of severe toxemia of pregnancy the chances of an exacerbation of vascular disease during the present pregnancy were high. This initial suspicion should have been reinforced by the mild hypertension which was apparent when the patient was only three months pregnant. Despite these ample warnings of trouble ahead, the patient was seen at only long, very infrequent, intervals. Indeed, she was not seen at all by the physician for five weeks after the blood pressure had further increased during the last trimester. Such a situation should have called for the most careful follow-up, once or twice a week at a minimum, the prescription of a salt-free diet, perhaps with "thiazide" diuretics in addition to reserpine, and admission to the hospital if hypertension persisted or

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DR. CLARENCE D. DAVIS is Associate Professor of Obstetrics and Gynecology, Yale University School of Medicine.

worsened. By the time she was finally admitted on May 16, signs of the advancing toxemic process were very apparent in proteinuria and mild elevation of the blood urea nitrogen. Vascular disease of the placenta had apparently progressed so as to result eventually in death of the fetus.

It is by no means certain that even the best of prenatal care and the most judicious use of hypotensive medications could have resulted in a successful pregnancy in this case, or prevented the exacerbation of vascular disease. It appears likely that this may be achieved in many patients, and that eclamptic explosions, with convulsions, may almost always be prevented by careful supervision of the pregnant woman in whom hypertension appears or is exacerbated.

The routine use of intravenous or intramuscular ergotrate in this type of patient is unwise because of its tendency to cause sudden elevations of blood pressure which may be alarming and dangerous.

One should surely question the wisdom of sending this patient home as early as three days after delivery. Post partum follow-up should certainly include blood urea nitrogen and clean-catch urine culture, as well as recordings of blood pressure and tests for proteinuria.

Mark Your Calendar

Connecticut State Medical Society
170th Annual Meeting
May 2, 3, 4, 1962
Statler Hilton Hotel, Hartford

Annual Meeting Of The House Of Delegates
Wednesday May 2, 1962
10:00 A. M.
Statler Hilton Hotel, Hartford

Plan Now To Save The Dates

The Opinion Survey Report

Beginning with the February issue of Connecticut Medicine, *a series of three articles based on the Opinion Survey Report is being published for the information of all members of the Society and others who read the Journal. The abstracts have been prepared by the members of the Council's Subcommittee on Opinion Survey (and the General Manager) with the intent of transposing the somewhat formidable array of numerical statistics and interview records contained in the 158-page Report into briefer, interesting and readable presentations of the results and conclusions.*

OPINION SURVEY ABSTRACTS

Fields 53 through 61

prepared by

William R. Richards, M.D., New Haven

Field 53

I. Income Levels For Service Benefits Under CMS Contracts

SURVEY QUESTION:

For purposes of information, do you feel that the dollar income levels for service benefits under CMS contracts should be high enough to cover:

a) Less than 50 per cent of CMS members?
b) Up to 50 per cent of CMS members?
c) Not more than 50 per cent of CMS members?
d) Up to 60 per cent of CMS members?
e) Up to 75 per cent of CMS members?
f) Up to 100 per cent of CMS members?
g) Other?
h) No opinion?

The definition of "Service Benefits," according to the Opinion Survey Glossary, is "the acceptance by Participating Physicians of a reduced fee or payment schedule so as to provide full payment for the services of doctors of medicine rendered to CMS members whose individual, joint or family incomes fall within certain stated limits."

During the past five or six years, various segments of the Society's membership have engaged in somewhat heated debates as to what ought to be the objectives of Connecticut Medical Service, Inc, with respect to the proportion of people covered under CMS contracts which should be guaranteed this "full pay" feature. It should be kept in mind that the "full pay" or service benefits guarantee does not necessarily mean that the Plan makes a dollar-for-dollar payment of the physician's usual fee. By definition, it means that a *schedule payment* is accepted as *full* payment by the Participating Physician in income-eligible cases.

Answers to this question, combining the first three categories of reply, indicate that a total of 47 per cent of the members taking part in the Survey feel that service benefits production should be kept at the 50 per cent level or below. The frequency of this feeling among the various types of practitioners is as follows:

Obstetrics-Gynecology	69 per cent
Urology	65 per cent
Dermatology	63 per cent
General Surgery	61 per cent
Ophthalmology	60 per cent
Otolaryngology	60 per cent
Orthopedics	52 per cent
Internal Medicine	51 per cent
Pediatrics	45 per cent
General Practice	42 per cent
Neuropsychiatry	36 per cent
Anesthesiology	31 per cent
Radiology	31 per cent
All others	59 per cent

As between those respondents who are engaged in private practice and those who are not, there is a marked difference of opinion as to the "50 per cent or less" objective. Of the former, more than 45 per cent favor this limitation, while of the latter, only 22 per cent hold this view.

In personal interviews, the reasons given for preferring "less than, no more than and up to" a 50 per cent level of service benefits under CMS contracts varied from the traditional view that "this is a plan for low-income people" and that "organized philanthropy" should be limited in scope, to opinions that this level should obtain "unless payment schedules are increased" and that "if service benefits limits are raised, it's another step toward setting all fees for doctors."

A considerable group (36 per cent) favored going above the 50 per cent service level, 11 per cent being willing that "full pay" coverage should apply to up to 60 per cent of CMS members, 18 per cent indicating agreement with covering up to 75 per cent of CMS members, and 7 per cent answering that "full pay" coverage should apply to 100 per cent of CMS members. Again, among non-private practitioners the enthusiasm for extending service benefits to 60 per cent and 75 per cent of CMS members was much greater, about 40 per cent being in favor of these extensions, and some 16 per cent even favoring a 100 per cent service program as compared to only 7 per cent among those practicing privately.

From personal interviews, it appears that in the 60 per cent, 75 per cent and 100 per cent segments there is a strong and rather uniform corollary opinion held that "realistic payment schedules" and "normal rates" should accompany these higher service benefits levels. Also, it was stressed that if CMS made plans to attain such extended objectives, the proposals should be accompanied by "realistic fees," and that "the inadequate fees in present schedules" would have to be substantially increased so that "CMS rates would be what doctors normally charge."

While many of those who voiced favor for an expanded service program laid heavy emphasis on the important "public interest" aspect of the CMS operation, none seemed to take cognizance of the fact that more *realistic* instead of "reduced" payments to physicians will almost certainly mean increased premium charges to all CMS subscribers, whether of low income or high; whether old and retired or young and gainfully employed.

Oddly enough, the third largest single group of private practitioners (about 17 per cent) answering this question either expressed no opinion or made replies which were not applicable to any of the choices offered. This lack of conviction on the part of so many respondents is difficult to explain but may well relate to the reaction of one interviewed physician who "checked 'no opinion' because, without facts, it's an utterly confusing question," or another who believes that only statisticians or other professionals can "figure out at what level CMS service benefits are needed to supplement the patients' ability to pay currently for medical care. This should be the determining factor . . ."

For the purposes of comparison between the opinions expressed by those of our members who responded to the Survey questionnaire with samples of the thinking of others, the following two pertinent statements are offered without comment:

> National Blue Shield Medical Care Plans: (1958): "A Service Benefits plan should endeavor to provide a maximum family income limit high enough to include . . . a substantial majority (up to 75 per cent) of the population in its area of operation . . .".
>
> University of Michigan Blue Cross-Blue Shield Study Group (1961): "Urge Blue Shield to provide the vast majority of all subscribers (and covered members) with full Service Benefits . . .".

Field 54

If dollar incomes are used to guide the extent of service benefits coverage to CMS members under CMS contracts, what agency do you feel should recommend the dollar income levels to be established or changed from time to time?

- **a) The House of Delegates of CSMS?**
- **b) The Board of Directors of CMS, Inc.?**
- **c) A joint committee of CSMS and CMS, Inc.?**
- **d) The State Insurance Commissioner?**
- **e) The State Legislature?**
- **f) Other agency?**
- **g) No opinion?**

The replies to this question showed a great deal more uniformity of opinion than was evident in the answers to the first question in this group. Among both the private practitioner and non-private practice groups, two out of three respondents (63.8 per cent) expressed the belief that a joint committee made up of representatives of the Society and the CMS Board of Directors is the agency best suited to make recommendations as to what the dollar income levels for service benefits eligibility under CMS contracts should be. A "Joint Liaison Committee" has been in existence since 1959 and it is to be noted, as defined in the Opinion Survey Glossary, that the function of the CSMS and CMS committees, meeting jointly, is to "discuss and advise" *only*. Final action on any matter discussed or any advice given by the liaison body remains "entirely within the province and authority of the two parent organizations." In this way, in all official decisions of the Connecticut State Medical Society which concern Connecticut Medical Service, Inc., the Society's House of Delegates has the final word. From the personal interviews, it is sensed that most respondents feel that the House of Delegates should properly retain this prerogative, but the opinion was also expressed frequently that the House is too large and unwieldy to take primary action in this area and, in general, should have pertinent proposals made to it *after* prior study and review by the liaison committees of CSMS and CMS, Inc. As in the first question of this group, several of those interviewed stressed their conviction that expert "actuarial and statistical" advice should be obtained and utilized by any agency which has the responsibility for making recommendations affecting service benefits income levels.

Despite the rather convincing majority opinion just reported, a very substantial minority (27 per cent) of those in private practice held that the Society's House of Delegates should initiate, as well as recommend, the income levels which would influence the scope of service benefits coverage under CMS contracts. As his reason for preferring this agency, one respondent said: "The doctors trust best those whom they elect." Of those not in private practice, only 11.5 per cent checked the House of Delegates as their choice to perform this function.

Among private physicians, only 4.8 per cent wished the state insurance commissioner to take part in these recommendations and a mere 3 per cent voiced no opinion; whereas in the non-private segment, 9.2 per cent (almost double) felt the insurance commissioner should exert influence in this matter, and a sizeable 10 per cent held no opinion.

Field 55

Determining The Patient's Income For Purposes Of Establishing His Claim To "Service Benefits"

SURVEY QUESTION:

Under CMS contracts, do you object to asking the patient about his income for purposes of establishing his claim to "Service Benefits"

In the Questionnaire returns, 51 per cent of private practitioners *do* object to asking the patient about individual, joint or family income in order to determine if he or she qualifies for Service Benefits. 46 per cent have no objection to performing this necessary task, and somewhat less than 4 per cent hold no opinion in the matter.

Among those not in private practice, the feeling is quite different, with only about 28 per cent objecting, about the same number (45 per cent) not objecting and a much larger group (slightly in excess of 25 per cent) holding no opinion.

With the over-all feeling running nearly 50-50 on this question, it is not surprising that the personal interviews should have revealed instances of diametrically opposed attitudes here. One respondent, who objects strongly to asking patients about income, said: "It shouldn't be my business to check incomes. I'm a professional man, and should devote my time and thought to giving good medical service." At the other end of the scale, one who finds nothing objectionable about this duty said: "I don't ask patients about their incomes because I accept them all on a service benefits basis." Needless to say, there were many shades of opinion expressed which lie between these two extremes, such as: "On principle I would rather not invade privacy, but I have no great objection to discussing this matter with the patient."

SURVEY QUESTION:

If it were possible to develop some alternate and practicable method of determining the patient's income for this purpose, would you prefer it?

Despite the almost equal division of opinion expressed on the first question in this group, some 80 per cent of private practitioners respondents indicate that they would prefer an alternate method of determining a patient's eligibility for service benefits on the basis of income. This suggests that many of those who do not particularly object to asking patients about income would like it better if there were some other practicable way of getting this information. Save for a great number who held no opinion, the non-private group voiced about the same preference on this point, with a little over 60 per cent favoring an alternate method if a workable one could be found.

SURVEY QUESTION:

Would you prefer to have CMS be responsible for informing participating physicians regarding the income category of CMS members?

About 75 per cent of respondents say they would prefer to have CMS responsible for providing Participating Physicians with information about service benefits income categories. The preference here ran about 15 per cent higher among private practitioners than among those not in private practice.

Beyond the suggestion by many respondents interviewed that CMS make annual check-ups of every CMS subscribing member's income eligibility for service benefits, no detailed *modus operandi* through which CMS might discharge this responsibility was elicited.

Fields 56-60

Payments Under CMS To Dentists, Osteopaths, Chiropodists And Other Non-M.D.'s

SURVEY QUESTION:

CMS is officially sponsored only by the Connecticut State Medical Society, and is often referred to as "The Doctors' Plan." In these circumstances, do you believe that under identical administration and payment schedules, payments should be made to:

Dentists?
Osteopaths?
Chiropodists (Podiatrists)?
Other non-M.D.'s?
No opinion?

Of those responding, a great majority do not believe that CMS payments should be made to most non-M.D.'s under the same administration and payment schedules as applies to doctors of medicine. The strength of this conviction varied somewhat, with 75 per cent saying "No" as to Osteopaths, 76 per cent saying "No" as to Chiropodists and 82 per cent saying "No" as to other non-M.D.'s.

The single exception to this opposition was the opinion regarding payments to Denists. Here, 54 per cent were agreeable to having dentists paid under "identical administration and payment schedules." From personal interviews, this exception appears to be based to some extent on the fact that much "dental work is done in hospitals" in association with M.D. anesthestists and that "dentists come in on fractured jaws."

Perhaps a key opinion with respect to the other non-M.D.'s mentioned was expressed as follows: "Let these other groups have their own plans. We have no supervision over them, and they should not be included in the 'doctors' plan'."

Field 61

Methods Of Payments To Doctors For Service Covered By Insurance

SURVEY QUESTION:

In making payments to doctors of medicine for services rendered to patients covered by Blue Shield or private insurance company plans, one of the following methods is usually employed by the insuring agency. Of the methods listed, which do you prefer:

Direct payment to the doctor?

Direct payment to the patient, with or without assignment of the payment to the doctor by the patient?

Direct payment to the patient, with co-signing of the check by the doctor required?

Other?

No Opinion?

Replying to this question, a vast majority of private practice respondents (89 per cent) prefer that insurance payments be made directly to the doctor who performed the service. Only a handful (3, 6, and 2 per cent) favored any other choice.

Among the non-private practitioners, the preference for direct payment to the doctor was not quite as marked (76 per cent), and the other methods generally received slightly stronger support (9, 8, and ½ per cent), with 7 per cent expressing no opinion.

Of those personally interviewed, some favored direct payment to non-participating physicians by Connecticut Medical Service, Inc. One doctor's feeling: "The present plan (of direct payment *only* to Participating Physicians) is to coerce physicians to participate."

As a matter of interest, the Board of Directors of CMS, Inc. views this matter as follows (March 27, 1961): ". . . it is our opinion that the only practical advantage which accrues to physicians who participate in CMS is that payments . . . are made directly to them . . ." . . . "it has always been the position of CMS that if the physician wishes to have the practical advantage of direct payment by CMS, he should accept the responsibilities of the Participating Physician." In this opinion, the CSMS Liaison Committee concurred.

OPINION SURVEY ABSTRACTS

Field 46 through 52

prepared by

Vincent A. Gorman, M.D., Bridgeport

Field 46

I. Over-Utilization Of Hospital Facilities

SURVEY QUESTION:

In your opinion, is hospital-care insurance contributing significantly in Connecticut to over-utilization of hospital facilities?

Special Interview Question:

How serious in Connecticut is over-utilization of hospitals? How serious is it in the hospital (hospitals) where you yourself practice?

Two out of three of all respondents (68 per cent) hold the opinion that hospital-care insurance is contributing significantly to over-utilization of hospital facilities. There is substantial variation in the degree of convction on this point among those who are in private practice. As examples, over 90 per cent of Radiologists and Dermatologists believe this is so, whereas only about 75 per cent of General Practitioners and Surgeons and a much smaller number of Pediatricians (57 per cent) concur in this belief. But regardless of type of practice, about 75 per cent of those practicing privately are of the opinion that hospitals are over-utilized to a significant degree as a consequence of patients being covered by hospital-care insurance.

From personal interviews, it is apparent that the term "over-utilization" is open to various interpretations which may be influenced by such individual factors as type of practice, availability of hospital beds and services and the size of the community in which the hospital and the practitioner are located. Again, since some physicians normally keep a patient hospitalized for a longer period than others for the same condition, the length of stay in the hospital for a given case may be considered as over-utilization by one doctor and not by another. It must also be kept in mind that while some of those interviewed felt this matter was of only minor concern, a majority described it as "serious."

SURVEY QUESTION:

Do you feel that improved methods need to be developed in Connecticut to control the utilization of hospital facilities?

Although about one-third of those replying do not believe that hospital-care insurance contributes significantly to over-utilization, 74 per cent feel that improved methods should be developed to assure maximum efficiency in the utilization of hospital facilities and to prevent over-utilization. Among those interviewed personally, many suggestions were offered as to how over-utilization could be "controlled." Most of these suggestions involve a cooperative effort between patients, physicians, special hospital committees and local and county medical societies, as well as insuring agencies themselves. Better education of all concerned with hospital-care insurance appears to be considered about as important as controls *per se.*

Fields 46 through 52

II. Over-Utilization Of Doctors' Services

SURVEY QUESTIONS:

In your opinion, is physician-care insurance contributing significantly in Connecticut to over-utilization of the services of doctors of medicine?

In your opinion, are additional and improved methods of control of the utilization of physician-care insurance needed:

a) In the case of Connecticut Medical Service, Inc?

b) In the case of private insurance carriers?

A majority of private practitioners responding (65 per cent) do *not* believe that physician-care insurance contributes to over-utilization of the services of physicians. A minority of 25 per cent, however, do believe that insurance encourages unnecessary visits to the doctor. From the former group, one interviewee said: "Higher standards of medical care mean more use of doctors' services. This, in my opinion, is not over-use, even when bills are paid in whole or in part by insurance." In the latter group, one physician said: ". . . when people have insurance they go to doctors for minor things they could well take care of themselves. This . . . ought to be checked." Some 10 per cent voiced no opinion at all in this matter.

Regarding the need for additional controls (over and above the Medical Advisory Committee of CMS, Inc., and the claims agencies of private insurance carriers), a majority of private practitioners (56 per cent as to CMS and 52 per cent as to private insurance carriers) 65 per cent do not believe that additional controls are necessary with respect to the use of physicians' services covered under doctor-care insurance. However, if additional controls are needed, nine out of ten doctors (90 per cent) desire that the responsibility in this matter rest either with the medical profession alone (41 per cent) or jointly with representatives of the insuring agencies (49 per cent). In these replies, there was no significant difference of opinion with regard to CMS, Inc. versus the private insurance companies.

SURVEY QUESTIONS:

As to doctors' services, upon whom should controls be exercised?

a) Upon the doctor of medicine?

b) Upon the patient?

c) Upon both the doctor *and* the patient?

Would you favor the establishment of special "policing committees" by County Medical Association, over and above existing Boards of Censors, to review the utilization of the services of County members under prepayment and insurance plans?

Of all physicians responding, about 64 per cent favor that any controls of this nature which may be required apply equally to both doctor and patient. On this point, there was little difference of opinion between those in private practice and those not. Respondents who believe the controls should be applied primarily to the doctor amounted to about 13 per cent, and those who feel the patient needs controlling most—about 10 per cent.

Fifty-one per cent favor the establishment of "policing committees" by county medical associations, over and above existing boards of censors, to review the utilization of the services of county members under prepayment or insurance plans. Thirty-seven per cent oppose this. Thirteen per cent express no opinion.

(*This is the second of a series of three articles.*)

Doctor's Office

Arthur T. Davidson, M.D., announces the removal of his office from 2149 Main Street to 56 Vine Street, Hartford.

Witold Kawecki, M.D., announces the opening of an office for the practice of psychiatry at 165 West Main Street, New Britain.

Edward P. Kuczko, M.D., announces the opening of a second office for the practice of obstetrics and gynecology at 28 Church Street, Newtown. Dr. Kuczko will share the office facilities of Dr. Benton Egee. He will continue to maintain his Danbury office at 12 Osborne Street, Danbury.

John J. McGarry, M.D., announces the removal of his office from 188 Post Road East to 201 South Main Street, New Canaan.

Paul O. Muller, M.D., announces the opening of an office for the practice of psychiatry at 11 Main Street, Danbury.

M.D.O.D. Plan

"Medical Officer of the Day," a new emergency call plan will be launched sometime during this year by The Hartford County Medical Association.

The M.D.O.D. plan is based on the alphabetical rotation of doctors on call, with each doctor having one 24-hour period during which he can be called by the society to answer emergency calls.

The plan is in addition to the 10 year old Emergency Medical Bureau operation. It is already in use in two Massachusetts counties.

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170th ANNUAL MEETING

of the

CONNECTICUT STATE MEDICAL SOCIETY

Statler-Hilton Hotel

10 Ford Street, Hartford, Connecticut

May 2, 3, 4, 1962

PROGRAM COMMITTEE

Howard Levine, *New Britain, Chairman*
Harvey W. Kaetz, *New Haven*
Allen M. Margold, *Norwalk*

LOCAL COMMITTEE ON ARRANGEMENTS

David L. Warren, *Manchester, Chairman*
Deal T. Aseltine, Jr., *Hartford*
William H. Glass, *Hartford*

PRELIMINARY PROGRAM

Wednesday, May 2

Mezzanine Floor

Annual Meeting of the House of Delegates

Michael R. Scully, *Bridgeport, Speaker of the House, presiding*

10:00 Call to Order
Business Session

1:00 Luncheon for Officers, Members of the House and Guests

2:00 Resumption of Business

Thursday, May 3

MEZZANINE FLOOR

9:00 REGISTRATION

10:00 CALL TO ORDER—President of the Society
ADDRESS OF WELCOME—President, Hartford County Medical Association

10:30 CEREBRAL VASCULAR ISCHEMIA
Robert G. Siekert, Rochester, Minnesota

11:10 INTERMISSION TO VISIT TECHNICAL EXHIBITS

11:40 PERIPHERAL VASCULAR DISEASE
Hugh Hussey, Washington, D. C.

12:20 SUBJECT TO BE ANNOUNCED
Richard Ford, Boston, Massachusetts

1:00 LUNCHEON
VISIT TO TECHNICAL EXHIBITS

2:00 CURRENT STATUS OF FIBROLYTIC THERAPY
Eugene E. Cliffton, New York City

2:40 HUMAN CHROMOSONES
W. Roy Breg, Southbury, Connecticut

3:30 **Meetings of Sections of the Society and Guest Organizations**

Section on Dermatology (2:30 P.M.)
Section on Gastroenterology
Section on Obstetrics & Gynecology } Joint Meeting
Connecticut Society of American Board Obstetricians and Gynecologists } Joint Meeting
Section on Orthopedics
Section on Physical Medicine (3:00 P.M.)
Section on Radiology
Section on Urology
Connecticut Diabetes Association (2:00 P.M.)
Association of Medical Examiners
Connecticut Chapter—American Physical Therapy Association
Connecticut Occupational Therapy Association
Hezekiah Beardsley Pediatric Club

7:00 **Annual Dinner of the Society**

Friday, May 4

MEZZANINE FLOOR

9:00 REGISTRATION

9:15 FILM

9:45 RECONSTRUCTIVE SURGERY IN RENAL HYPERTENSION
Eugene F. Poutasse, Cleveland, Ohio

10:30 SHOCK
F. Anthony Simeone, Cleveland, Ohio

11:10 INTERMISSION TO VISIT TECHNICAL EXHIBITS

11:40 SUBJECT-SPEAKER TO BE ANNOUNCED

12:20 THE CHANGING CONCEPTS OF PITUITARY ADENOMAS
James L. Poppen, Boston, Massachusetts

1:00 LUNCHEON
VISIT TO TECHNICAL EXHIBITS

PROGRAM ARRANGED BY CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

2:00-3:30 PEDIATRIC SURGERY—CASE PRESENTATIONS
Willis J. Potts, Chicago, Illinois

(The Connecticut Society of American Board Surgeons will have a social hour and dinner at the Shoreham Motor Hotel, 440 Asylum Street, Hartford at 6:00 P.M. Following dinner, Dr. Potts will speak on "Present Status of Cardiac Surgery in Pediatrics.")

3:30 MEETINGS OF SECTIONS OF THE SOCIETY AND GUEST ORGANIZATIONS

Section on Allergy
Section on Anesthesia
Eye, Ear, Nose and Throat Section (2:30 P.M.)
Section on Neurosurgery
Section on Preventive Medicine and Public Health
Connecticut Association of Medical Record Librarians
Connecticut Chapter, National Association of Social Workers

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Mental Health

The chairman, Mrs. G. Gardiner Russell and her co-chairman, Mrs. Richard B. Brown reported to the last meeting of the Board of the State Auxiliary on mental health legislation. They stated that the Commissioner of Mental Health for the state made it clear more money is needed to carry out a good program—the main problem is that of public education in its attitude to the mentally ill. This illness should be treated with the same attitude as any other illness.

Our state committee will cooperate with the state Mental Health Association in planning programs and work areas so that there is no duplication. This joint plan includes a joint speaker meeting, and the gathering of data in regard to followup work with discharged patients, i.e., activities and social adjustments.

Regional Meeting of A.M.E.F. Chairmen

Financial support of our medical schools was stressed at the Regional meeting of A.M.E.F. Chairmen from New England to Kentucky at the Garden City Hotel, Long Island, N.Y., on November 30 and December 1. The National Chairman, Mrs. James McCartney of New York state reviewed the A.M.A. request that we give top priority to collecting funds for A.M.E.F. This money is needed to make sure medicine remains in the freedom of the American tradition and as an Auxiliary, they expect our help. EVERY DOLLAR RAISED GOES TO MEDICAL SCHOOLS.

County auxiliaries are planning fund raising events and members are urged to obtain Sympathy, Appreciation, and All Purpose cards from their County A.M.E.F. Chairman. Plastic playing cards for AMEF are bing sold in the counties and will be available at the state meeting.

MARK YOUR CALENDAR NOW!

Annual Meeting of the Woman's Auxiliary to the Connecticut State Medical Society, Thursday, May 3rd, 1962, Hartford.

Details will follow.

Schedule For Active Immunization Of Infants And Children

In accordance with the recommendations of the Report of the Committee on the Control of Infectious Diseases of the American Academy of Pediatrics and approved by the Public Health Committee of the Connecticut State Medical Society and by the Connecticut State Department of Health, the following schedule for active immunization of infants and children is presented:

AGE	PREPARATION
1½ to 2 months	D.P.T. Poliovaccine
3 months	D.P.T. Poliovaccine
4 months	D.P.T. Poliovaccine
6 to 12 months	Smallpox vaccine
12 months	D.P.T. Poliovaccine
2 years	Poliovaccine
4 years	D.P.T. Poliovaccine
6 years	Smallpox vaccine Poliovaccine
8 years	D.T. ("adult type") Poliovaccine
10 years	Poliovaccine
12 years	D.T. ("adult type") Poliovaccine
14 years	Poliovaccine
16 years	D.T. ("adult type") Poliovaccine

INFLUENZA VACCINE

At the Council meeting of February 15, 1962 it was voted to publish in Connecticut Medicine the following statement of the Committee on Public Health: "While Influenza vaccine is in short supply, it is recommended that vaccine be given only to certain selected groups; i.e., those over 65 years of age, the chronically ill and pregnant women."

In Memoriam

Blau, Rudolph—Waterbury; University of Berlin, 1920; practiced medicine in Waterbury for 24 years; born in Berlin, Germany September 22, 1896; served as an associate staff member at Waterbury Hospital, died at Waterbury Hospital following a long illness, aged 65 years.

Crawley, George A.—West Hartford; Temple University School of Medicine, 1928; practiced general medicine in West Hartford since 1930; served in the medical corps with the Connecticut National Guard from 1942 to 1953, when he transferred to the U. S. Army in 1960, with the rank of colonel; Dr. Crawley was medical advisor for the Connecticut State Police for 15 years; he also served as surgeon for the West Hartford Police Department, chief medical officer at Wethersfield State Prison, local school physician and as team physician for the Weaver High School, Hartford, football team; collapsed suddenly and died of a heart attack January 12, at the age of 61 years.

Witter, Orin R. — West Hartford; Columbia University College of Physicians and Surgeons, 1901; the fourth Orin Witter to practice medicine in Connecticut, Dr. Witter maintained his medical office in Hartford since 1904; both his father and grandfather were practicing physicians in Chaplin, where he was born in 1876; served as president of the Hartford County Medical Association in 1926 and president of the Hartford Medical Society in 1931; he was chosen by the New York Academy of Medicine in 1931 as one of fifty physicians to study the clinics and spas of France; he was attending physician at the Newington Home for Crippled Children, the Hartford Dispensary, the Hartford Orphanage, and at Mt. Sinai and Hartford Hospitals; he held various positions, served as chief of the medical department and was later named consultant in medicine at Hartford Hospital; he was a 32nd degree Mason, and a member of Sphinx Temple AAONMS; he was a member of the Rotary Club and the Congregational Club of Hartford; died January 15 at his home after a long illness, aged 85 years.

Around The State

Flouridation In Connecticut

In Connecticut more than one of every five of us is drinking fluoridated water. New Britain's people, who have had fluoridated water for 10 years are reaping rich rewards. Children there have only a third as many cavities as similar children elsewhere, where fluorides are not added. In Connecticut and throughout the nation the effectiveness, the safety and the low cost of fluoridation continue to prove themselves.

The New Britain record confirms the findings made wherever controlled studies were made such as in Newburgh, New York, Branford, Ontario, and other points. Where the fluoride content of drinking water is adjusted to 1 part per million of fluoride, some 65 per cent of otherwise expected tooth decay is avoided.

Still no new communities in Connecticut decided to fluoridate during the year 1961, in spite of earnest educational efforts by volunteers, teachers, journalists and health agencies. The lag in Connecticut is reflected in the nation as a whole. The United States Public Health Service released a report in February, 1961 showing the lag in adopting fluoridation nationally is costing families in the nation $452 million dollars a year in terms of the potential cost of treating cavities not prevented by fluoridation.

In our neighboring state of Massachusetts, two Boston area communities decided to fluoridate their water supplies in 1961. Newtown and Peabody took this positive step. Among the many cities in the nation taking positive action was Kansas City, Missouri, which began fluoridation by order of the city council.

Source Book Of Health Insurance Data 1961

The 1961 Source Book of Health Insurance Data issued by the National Health Insurance Council is now available. This booklet containing up-to-the minute statistics on the growth of voluntary insurance against health hazards holds a large measure of the answers to the advocates of the social security approach to the payment of the costs of medical care. Members of the Society who would be in a position to argue the case for the voluntary method of medical care are urged to obtain a copy of this booklet.

New Haven County

Annual Meeting

The 178 Annual Meeting of the New Haven County Medical Association will be held on Thursday, March 22, 1962 at the Waverly Inn, Cheshire. The business meeting is scheduled for 2:30 P.M.

Dr. Michael Shea of New Haven has been appointed staff doctor for Springside Home. He has resigned as a member of the City's Welfare Board to accept the post. Dr. Shea has been closely affiliated with the development of Springside as a Welfare Board member.

Dr. Gilbert H. Glasser, associate professor of Neurology, was appointed Editor-in-Chief of World Neurology, the *Journal of the World Federation of Neurology*. He was also elected to the executive board of trustees of the American Academy of Neurology for the 1961-1965 period.

Dr. Mark Hayes, professor of surgery, was elected to the board of governors of the American College of Surgeons at its recent meeting in Chicago. Dr. Hayes has been a Fellow of the College in Connecticut since 1952 when he joined the Yale faculty. A specialist in cancer surgery, he was elected President of the Connecticut Division of the American Cancer Society in 1959.

Dr. John Rodman Paul, Professor Emeritus of Epidemiology and Preventive Medicine, was honored by the *Yale Journal of Biology and Medicine* for his outstanding accomplishments by dedicating its December-February issue to him. Dr. Paul is Director of the World Health Organization Reference Serum Bank at Yale. Dr. Dorothy M. Horstmann was editor of the issue which contains Dr. Paul's bibliography, a history of the department, and eighteen papers by students and colleagues now scattered all over the world. Among the contributors are Sir Christopher Andrewes, Sir MacFarlane Burnett, Dr. John Enders, Dr. Alfred Evans, Dr. Thomas Francis, Jr., Dr. Sven Gard, Dr. James Gear, Dr. Joseph Melnick, Dr. Albert Sabin, and Dr. Herbert Wenner.

An expanded issue of the *Journal of the History of Medicine and Allied Sciences* (January (1962) will be published in memory of its former editor, Dr. John F. Fulton, Sterling Professor of the History of Medicine until his death in May 1960. This illustrated number pays tribute to his distinguished work in three fields through papers on John Fulton as book collector, physiologist, and medical historian. It also includes his complete bibliography and nine other papers by friends and colleagues.

Hartford County

Dr. John C. Leonard, Director of Medical Education, Hartford Hospital, addressed the 58th Annual Conference on Medical Education recently at the Palmer House in Chicago. His subject was "Proposed Accreditation of Continuing Education Programs".

Naugatuck Valley Medical Society

At the annual meeting held in January, assignments to the 22 working committees of the Naugatuck Valley Medical Society were made and annual dues were increased by 150 per cent. The need for monetary compensation to the officers and workers of the Naugatuck Valley Medical Society and organized medicine in general for their time and efforts on behalf of the group was discussed in a generally affirmative vein, but no specific action was taken.

Preliminary reports of the medical recruitment committee to encourage young people to undertake a career in medicine, and the Disaster Committee's subcommittee on civil defense were heard.

The present "service committees" will continue their previous programs. These include the community polio clinics, the $2,000 scholarship program, the medical panel for emergency medical care, the District Nurse Association programs, the speakers bureau, and the various liaison and advisory services to lay organizations and groups.

The development of American Medical Political Action Committee and Connecticut Medical Political Action Committee was discussed and enthusiastically supported in principle.

At the February program night arranged by Charles M. D'Alessio, Vice-President in charge of programming, Judge Thomas Bennett was the principal speaker on the subject of wills and estates. At the short business meeting held in conjunction with the Program Night, a committee was appointed to undertake to cooperate with the Red Cross in the collection of whole blood in the community. This project will probably require about five hours of free physician service to that organization approximately every three weeks. Details of the new Kerr-Mills Legislation were discussed and made public.

The society accepted the invitation of a local lay religious group to attend a meeting of that group in the near future at which time a program would be presented of medical interest. It was felt that this offered an excellent opportunity for an organization of doctors to get to know a local lay group as an organization without the handicap of a political or legislative issue which so often produces controversy and conflict rather than co-operation and mutual respect.

The Naugatuck Valley Medical Society Woman's Auxiliary at its January meeting initiated plans for its annual spring dance. The report of the very successful community wide Scholarship Ball held in the fall was given by the co-chairmen, Mrs. Fred M. Haddad and Mrs. Stewart J. Petrie.

AMA To Meet In Chicago's New McCormick Place

Physicians attending the 111th Annual Meeting of the American Medical Association June 24-28 in Chicago will view over 700 exhibits and hear scientific papers in the air-conditioned comfort of America's newest and most modern exposition center—McCormick Place.

Doctors who attended the last Annual Meeting held in Chicago—in 1956—have unpleasant memories of extremely hot, humid weather and poor facilities on the old Navy Pier. Those planning to attend the 1962 meeting are looking forward to their visit to the new $34,000,000 convention "city" on the lakefront which boasts unobstructed exhibit areas, theatres, attractive restaurants and lounges, shops, and esplanades.

McCormick Place, located on Lake Michigan at 23rd Street, a short distance south of the Loop, is a huge, horizontal structure three blocks long, a block wide and equal to a ten-story building in height. It is fully equipped to handle 30,000 people an hour as they visit exhibits.

Gross exhibit space is 310,000 square feet in the principal section, roughly the area of six football fields. Exhibitors are welcoming the convenient arrangement whereby a train of railroad cars can run inside the building on a special spur for unloading equipment.

There is ample parking for everyone attending the meeting—exhibitors and others in addition to physicians — in huge lots adjoining the building. McCormick Place is a ten-minute taxi or bus ride from the hotel area in the Loop.

Hotel rooms will be available for everyone. There are 45,700 hotel rooms for guests in the central Chicago area, plus more than 100 hotels in and around the city.

The 1962 meeting will be the first in recent history in which it will be possible to house the entire meeting—scientific sessions, scientific and industrial exhibits, section meetings—under one roof.

LETTERS TO THE EDITOR

February 12, 1962

Dear Dr. O'Connor:

The Joint Interprofessional Relations Committee (Joint Conference Committee) at their meeting on February 8th discussed the problem of physicians not fully completing instructions on their prescriptions relative to whether or not the pharmacist may refill such prescription, and if so how many times. A recent survey in Connecticut by one member pharmacist on the Committee indicated that only 10 per cent of over 1,000 prescriptions had any written instruction as to such refilling.

As the secretary to this Committee I was asked to write you for your cooperation in printing something similar to the following in a forthcoming issue of Connecticut Medicine:

> Pharmacists cannot refill prescriptions for medication restricted by Federal or State Law unless so indicated on your prescription blank. For example:
>
> Refill—Once, twice, etc.
> or the
> Length of Time the patient should receive such medication.
>
> (Note: Narcotics require new, *written*, prescriptions as usual.)

The Committee would appreciate your printing of the above as a service both to physicians and pharmacists and in the interest of better interprofessional relations between the two professions.

Sincerely yours,
Nicholas W. Fenney, *Secretary*

February 7, 1962

Dear Sir:

On February 1, 1962, the Connecticut Red Cross Blood Program reached a milestone of vital interest and significance to every practicing physician in Connecticut—the collection of the MILLIONTH pint of blood donated through Red Cross bloodmobiles since the Program's first bloodmobile operation on June 5, 1950! Another 102,000 pints have been donated directly to hospitals by donors recruited by local Red Cross Chapters in emergencies and for 271 open-heart surgery cases completed. In addition, large quantities of plasma, serum albumin, gamma globulin, fibrinogen and fresh frozen plasma have been made available through the Program.

The Blood Program in its present form and concept originated in 1950, through the joint efforts of your State Medical Society, the Hospital Association and the American Red Cross Chapters of Connecticut; the latter submerging their individual autonomy in this concerted action towards one of the greatest humanitarian projects ever launched in this state. The Red Cross Chapters accepted, and still retain, the total responsibility for planning, organization, donor recruitment and financial and volunteer personnel support for all bloodmobile visits and for emergency hospital donors; a continuing task of enormous over-all magnitude. In addition, each chapter makes direct prorated contributions towards financial support of the Blood Center, the Program's administrative and operational component.

As a result, and in contrast to many areas in the nation, physicians in this state have had few occasions for concern for an adequate and readily available supply of this medicine in the almost 12 years since the Program began. Starting with a total collection of 69,800 pints in its first year, including 6,000 pints collected in hospitals, the program has kept pace with the ever increasing hospital requirements for blood resulting from population growth and expanding clinical use, reaching a total collection in calendar 1961 of 101,221 pints, including 8,606 pints donated in hospitals.

This continuing and outstanding boon to medical care in Connecticut, all at no cost for the blood itself, has been made possible through the sustained and dedicated efforts of thousands of volunteers of the Red Cross Chapters of the state. Last year, alone, they contributed over 100,000 hours in direct support of the some 850 visits made by the Red Cross Blood Center bloodmobiles throughout the state, of which nearly 9,000 hours were contributed by volunteer nurses and 621 hours by physicians.

Now, these good people need your help; your more active, statewide support as physicians, to whom this program is so vital and so closely bound. Think! What would you do without it? How can you help? As follows:

(1) By volunteer service as attending physician at bloodmobile visits in your community. The law requires the presence of a licensed physician at each visit. Many other Red Cross blood programs rely entirely upon local physicians for this essential medical coverage. In Connecticut the program is indebted to a few retired and semi-retired physicians, plus an occasional resident or intern on his rare day off, for this important function. Recently, age and infirmities have drastically reduced the numbers of the former and the always uncertain availability of the latter render these sources most precarious for day to day operations. This now most serious problem is already being relieved in some 15 communities where, last year, volunteer local physicians provided medical coverage for 115 local bloodmobile visits; at the same time boosting the Program immeasurably in the eyes of the public by their interest and approbation as manifested by their presence. This involves only an hour or so per year of any one individual's time if all or most physicians cooperate.

(2) By active support of local Red Cross Chapter blood programs by formal or informal public endorsement of the program as an essential element of medical care, assurance for prospective blood donors as to the continuing need for blood and the harmlessness of donating regularly, at appropriate intervals, by properly selected donors.

(3) By providing information for recipients, their families or friends, as occasions permit, on the free and unrestricted availability of blood in Connecticut, thus the total dependency of the Program on continued public support and their moral, but not stipulated, obligations to "do as they have been done by" as beneficiaries of the Program.

By these means you could evidence your appreciation of the outstanding and continuing effort on behalf of you and

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your patients by the thousands of Red Cross volunteers, become more familiar with the philosophy, policies and operations of your Blood Program, thus better prepared to resolve uncertainties, inspire confidence and promote support for the program among people who depend upon your guidance in medical matters, and finally, demonstrate the willingness of physicians to assume their full share of the quite considerable community wide effort to ensure the continued success of a project so essential to them and to medical care in Connecticut.

This is your opportunity and obligation to re-emphasize your support, as a physician, of a cooperative effort of such primary and enduring concern to the medical profession.

Respectfully submitted,
J. C. Early, m.d.
Director
Connecticut Red Cross Blood Program

Oxygen Rated Important Antidote In Cyanide Poisoning

Oxygen is "a specific antidote" in cyanide poisoning, said Dr. Constantin Cope, of Memphis, Tennessee.

Dr. Cope presented evidence that "oxygen exerts a protective effect on cyanide toxicity" in an article appearing in the recent Journal of the American Medical Association.

The exact biochemical mechanism is not known, he said, but increased oxygen tension in the arterial blood stream in some way blocks the cyanide effect.

As long as the oxygen tension of the body is adequate, he said, the toxic effect of cyanide is usually reversible.

A person with a lung ailment producing a lower than normal arterial oxygen tension is more vulnerable to cyanide poisoning, he said. Similarly, he said, a person with coronary heart disease or cerebral artery disease may have borderline oxygen tension.

"Under these conditions, cyanide opposed by a low oxygen pressure probably can kill quickly—certainly before any therapy can be given," he said.

"It is, therefore logical to recommend that only young healthy workers under 40 years of age be employed in those areas of industry in which accidental cyanide poisoning may be a hazard. Anyone aged over 40 with any sign of cardiorespiratory insufficiency should be restricted from working in such places."

Oxygen, as well as suitable drugs, should be available for immediate use in cases of accidental poisoning, he said.

The most vital steps in the treatment of cyanide poisoning, Dr. Cope concluded, are artificial respiration, if necessary; inhalation of pure oxygen, and the maintenance of a normal blood pressure. Drug therapy shortens the course of intoxication, he said, and is lifesaving when the poison is taken by mouth.

NEW BOOKS IN REVIEW

PSYCHIATRY — BIOLOGICAL AND SOCIAL, by Ian Gregory, M.D. Published by W. B. Saunders Company, Philadelphia, Pa., 1961, 577 pp., $10.00.

Reviewed by DENIS S. O'CONNOR

The increasing interest of doctors in the specialty of psychiatry in recent years is evidence of the vast accumulation and classification of knowledge of the diseases of the mind. The necessity for co-ordinated care of the mental problem by the general practitioner and the psychiatric specialist makes it imperative that the generalist have a familiarity with the means of diagnosis and treatment used by the psychiatrist as well as an understanding of the common psychiatric conditions.

This volume is particularly suited to the generalist who would know the methods of the psychiatrist and the characteristics of the conditions he treats.

The book is rather evenly divided into the general principles of psychiatry and the consideration of specific conditions.

Definition of terms common to the special field is very helpful as a beginning. The psychiatric evaluation is desirable but the consideration of the psychological tests which have come to have so much value in the quantitative evaluation of the particular case does much to place psychiatric diagnosis on a scientific basis.

In the second part of this volume devoted to the common specific psychiatric entities, unvarying pattern of treatment is used—i.e. definitions and classification, frequency and distribution, family history, personal history, mental examination, psychological evaluation, physical investigation, differential diagnosis, treatment and etiology.

This organization of material makes for easy reading and neat thinking.

As might be expected in a work of this type, there is no need for illustration. It would appear that the author's endeavor here was to make the subject of psychiatry intelligible to anyone of standard intelligence rather than to impress others with his command of the field. Unquestionably, he has produced a book which should be welcomed by the average doctor and by anyone in the para-medical field who should have a working knowledge of psychiatry.

This book can be recommended not only for psychiatrists but for the general practitioner, especially, for any paramedical worker whose activities encompass psychiatric problems.

OPHTHALMIC PATHOLOGY: An atlas and Textbook. Hogan, M. J. and Zimmerman, L. E., 2nd Ed. W. B. Saunders, Philadelphia and London, 1962, pp. 797, Figures 703, $30.00.

Reviewed by ROY N. BARNETT

This magnificent work is a complete revision of the 1952 First Edition, also sponsored by the American Academy of Ophthalmology and Otolaryngology and the Armed Forces Institute of Pathology. Only through the generosity of these sponsors and the authors could this volume be sold for $30.00.

Most of the illustrations in the first edition have been reused and many more added, some in brilliant color. They are uniformly of the highest quality and obviously made from excellent histologic material; furthermore each one clearly illuminates its point at appropriate magnification. The pictorial coverage of agents of disease is, I believe, superior to that in any of the general works dealing with pathology. As a change from the first edition the illustrations are scattered throughout the text instead of grouped at the end of the chapter, a change which the average user will find a considerable improvement for ease of study.

The text is divided into thirteen Chapters, including one devoted to General Pathology, one to Diffuse Ocular Disease and its Sequelae, one to Injury to the Eye, and ten to the specific components of the bulb, orbit and external appendages. Each section includes a comprehensive review of the specific ophthalmic disorder and of the general diseases which so often are manifest in the eye. Many of the minor lesions such as pterygium and nevi which often are submitted to the general pathologist receive considerably more attention than they did in the earlier edition.

This work should be in every ophthalmologist's library for study and reference. For residents it combines in one work all the information on pathology and anatomy necessary for the most comprehensive examination. For the general pathologist it is an essential reference work both for diseases of the eye and for unusual agents of disease.

SIR WILLIAM OSLER Aphorisms From His Bedside Teachings And Writings. Second Printing. Collected by Robert Bennett Bean and edited by William Bennett Bean. Charles C. Thomas Co., Springfield, Illinois.

Reviewed by LOUIS H. NAHUM

This little vignette, this modest introduction to Sir Wm. Osler, *in his own words* are hereby kept alive. The spoken word flies away, only the written word remains. We are indebted to the Elder Bean for having written down Osler's teachings at the bedside and hereby reproduced after editing by his son. Shining through every page is the inescapable fact that Sir William was a philosopher with a deep interest and understanding of humankind, and who also had a gift of stating simple truths in terse, crisp language.

Osler died over forty years ago. What has happened to medicine since that time and why is it desirable to recreate now the portrait of this man? It is because he epitomized in his life and work the basic concept that treatment of the patient was "the most important element in the treatment of disease that the patient not the disease was the entity."

When a student enters the study of medicine, he is deeply sympathetic to the suffering and woes of the sick, but there is too much suffering in identifying with victim of disease. The student gradually shields himself with an armor so that he can look at his patient objectively in other words, he goes from sympathy to emphathy. In this transition, there is

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great danger of developing indifference, of losing compassion and humanity, of going from a personal to an impersonal role. The latter is especially prone to occur now when the physician has so much more to offer in the way of successful therapy. Formerly compassion and friendliness and understanding was really all the physician had to give. But this is still the central core of the physician's role in the present complex world and it is important that this role be preserved and brought to a new generation of medical students. They will feel what the man on rounds with Osler felt, that his teaching is directed at him personally. There is careful observation of the sick person who always saw Osler as a friend even while being the subject of a most intense scrutiny. There was masterful summing up of facts and their evaluation in the light of fruitful and diligent work in ward, autopsy room and library.

John Fulton has adorned this book with a masterful foreword in which we get a truer glimpse of Osler even than from his own aphorisms. We learn that Osler was greatly influenced by Sir Thomas Browne's *Religio Medici* and wrote in 1899 "My most treasured copy, the second book I ever bought has been a constant companion for thirty-one years." We learn further how Osler's philosophy was enriched by his lifelong study of the Greeks. A clear statement of four parts of his beliefs is worth reproducing. 1. A critical sense and skeptical attitude of the Hippocratic school which emancipated medicine from the schakles of priestcraft and of caste. 2. That medicine is an art based on accurate observation and an integral part of the science of man and nature. 3. High moral ideas as expressed in the Hippocratic Oath. 4. Conception and realization of medicine as a profession of a cultivated gentleman.

With this philosophy realized in his life's activities, it is not difficult to understand the fact that he exercised a wider influence upon the medical profession than any other man of his time. The test of any contribution is whether it remains pertinent to the modern student as it did on the day it was written. Osler's words meet this test admirably. "In the teacher" he says, "I have always valued the message of life above the message of the pen." Here he clearly takes sides in the current argument about teaching v.s. research. "Acquire the art of detachment, the virtue of method and the quality of thoroughness, but above all, the grace of humility."

Osler's first style we are told by Fulton was clumsy, but he persevered until he became one of the most accomplished medical writers of his era. "To study the phenomena of disease without books, he writes is to sail an unchartered sea, while to study books without patients is not to go to sea at all." "Should your assistant make an important observation, let him publish it. Through your students and your disciples will come your greatest honor." Fulton points out that Osler was a close student of Francis Bacon and an admirer of his philosophy and through many of the aphorisms in this little book shows some of Bacons wisdom "Read not to contradict and confute . . . but to weigh and consider." "Books must follow sciences and not sciences books."

From this little book we realize that Osler never forgets that he is a physician first, albeit a physician with a philosophic approach to his profession. One could quote much more but enough has already been said to whet the appetite of the reader, so that he will go on to find his own favorites among this admirable collection.

PROBLEMS IN SURGERY. From Surgical Grand Rounds at The New York Hospital—Cornell Medical Center. Frank Glenn, M.D., edited by George E. Wantz, Jr., M.D. The C. V. Mosby Company, St. Louis, 1961, 512 pp., $16.50.

Reviewed by IRA S. GOLDENBERG

One of the best methods of learning medicine is to talk about medical problems with older and wiser physicians than oneself. The general acceptance of this philosophy is best measured by the great number and diversity of teaching conferences of the "Grand Rounds" type held in almost all hospitals at regular intervals. These sessions allow a free interchange of ideas about common and uncommon medical problems between those physicians responsible for the patient's care and those who would like to learn more about such care. Unfortunately, only a limited number of interested persons can attend such conferences at large University hospitals, so that much of what is said is not passed on to a large audience. One way to achieve wide circulation of this type of material is to tape-record the conference, edit the material with tact and intelligence and publish it. CONNECTICUT MEDICINE has recognized the value of such an undertaking and during the past year has published several surgical grand rounds which were held at the Yale University School of Medicine. Now the group at the New York Hospital-Cornell Medical Center have published an excellent sampling of their surgical grand rounds.

This is an outstanding volume from many viewpoints. The surgical problems chosen for publication range from common entities (club feet, gastric ulcer, spontaneous pneumothorax, for example) to lesions nothing less than exotic (leontaisis ossea, jackhammer injuries to the elbow, choriosarcoma of the mediastinum, to mention but a few). The transcripts of the conferences have been cut to the essential history, diagnosis and management. Pertinent roentgenograms have been reproduced with clarity and important bibliographic references are cited.

The outstanding feature of the volume, however, is exposure of the reader to a veritable storehouse of medical information supplied by the staff of the New York Hospital. Almost seventy members of the faculty of Cornell University Medical College and several distinguished foreign visitors participated and brought ideas to the conferences about many abnormal physiological states.

This is not the kind of book to which one would constantly refer as a medical encyclopedia. Rather, it is interesting reading for itself and at the same time provides a place where a physician can look for answers to problems in his own patients. Despite the necessary surgical orientation of the book, viewpoints of internists, pathologists and pediatricians are expressed, which broaden its appeal beyond the surgical fraternity. This is a fine book which I highly recommend to any physician.

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THE CONNECTICUT PHYSICIANS ART ASSOCIATION

1962 EXHIBITION

Members of the Connecticut State Medical Society, their wives and children will be given an opportunity to exhibit their works of art at the *Statler-Hilton Hotel, Hartford, Connecticut,* on *May 2, 3, and 4th inclusive.*

Receiving

One day only—April 29, 1962, Sunday, from 11:00 A.M. to 1:00 P.M. All works must be delivered uncrated by the artist, or his agent, to the committee in charge.

Where

Pictures will be received at entrance from parking lot, Statler-Hilton Hotel, Hartford. Use parking lot on Asylum Street, opposite Hotel Bond.

Works Eligible

Oil, water color, tempora, black and white, etchings, photography, pastel, sculpture and ceramics. Copies may be entered, but must be so labeled.

Eligible Exhibitors

Members of the Connecticut State Medical Society, their wives and children. There will be four (4) groups: Children to 16 years—over 16 will be judged with adults; Beginners—to 3 years; Advanced—over 3 years; Professional.

Fee

A hanging fee of $1.00 will be charged for each entry. No fee for children under 16. Three entries allowed per artist.

Labels

Fill out in duplicate the enclosed labels. Attach one to each exhibit, mail the other together with the entry fee before April 1st to Mrs. Ernest Rosenthal, 17 Pine Road, West Hartford 7, Connecticut.

Exhibits should not be removed until 4:00 P.M., Friday, May 4th. Any remaining after 6:00 P.M. will be removed by the committee. Pictures should be framed and wired for hanging.

A Hospitality Committee will be in charge during the exhibit, May 2, 3, and 4th. The Exhibition will be judged by professional artists, on Wednesday, May 2nd.

Permanent Committee

John Freiheit, M.D., Waterbury, President, Connecticut Physicians Art Association.

Mrs. Orvan Hess, New Haven, Vice-President, Connecticut Physicians Art Association.

Edward Williams, M.D., Southbury.

Richard Starr, M.D., New London.

Charles O'Neill, M.D., Hartford.

Mrs. Laurence Harris, 34 Union Street, Thomaston.

Women's Auxiliary Art Committee

Hartford: Mrs. Ernest Rosenthal, 17 Pine Street, West Hartford, Chairman, AD 3-5650.

Litchfield: Mrs. Laurence Harris, 34 Union Street, Thomaston, AT 3-4149.

Fairfield: Mrs. Walter Kemp, Wildwood Road, Stamford, DA 2-1773.

Bridgeport: Mrs. Saul Meltzer, 316 Sailors Lane, Bridgeport.

Middlesex: Mrs. Andrew Turano, Marguerite Road, Middletown, DI 7-3824.

New Haven: Mrs. Steven P. Magyar, 85 Everit Street, New Haven, SP 7-3318.

Windham: Mrs. Robert Bowen, South Coventry, PI 2-8071.

For additional entry blanks and information please contact your county chairman.

A special effort will be made to recognize merit in each group, so it is important to fill in the entry blank completely, stating the number of years you have been enjoying this hobby. Professional artists are welcome, and will be judged in the professional class. The best winning entry of a physician will be sent, with the consent of the artist, to the A.M.A. Meeting in Chicago, in June. The Connecticut Physicians Art Association will pay the entry fee, shipping costs, and insurance. Crating is at the expense of the artist. Any physician may send his work by joining A.P.A.A. Application blanks for this purpose may be obtained from Dr. John M. Freiheit, 85 Grove Street, Waterbury, Connecticut. At the State Meeting the Society can assume no responsibility for any loss or damage.

Special Notices

HARTFORD HOSPITAL

Saturday Morning 11 O'clock Guest Speakers
March 3 to June 21, 1962

March 3—Jean Curran, M.D., Senior Consultant, Bingham Associates
Subject: "Korean-American Medicine"

March 10—Dorothy M. Horstman, M.D., Professor of Preventive Medicine and Pediatrics, Yale University School of Medicine.
The Dwight Griswold Memorial Lecture
Subject: "What Now in Polio Vaccine?"

March 16-17—Warren E. C. Wacker, M.D., Associate in Medicine, Harvard Medical School and Peter Bent Brigham Hospital.
Subject: "Human Magnesium Metabolism"

March 24—Stuart S. Stevenson, M.D., Professor of Pediatrics, Seton Hall School of Medicine
Subject: "Urinary Tract Infection in Childhood"

March 28-31—Anthony D'Esopo, M.D., Professor of Ob-Gyn, Columbia-Presbyterian Hospital, N.Y.C.
Subjects: 10:00 A.M. "Stress Incontinence"
11:00 A.M. "Indications for Hysterectomy"

April 7—Domingo Aviado, M.D., Associate Professor of Pharmacology, Univ. of Pennsylvania School of Medicine
Subject: "New Concepts in the Treatment of Bronchial Asthma"

April 14—C. Wilmer Wirts, Jr., M.D., Associate Professor of Medicine, Jefferson Medical College.
Subject: "Malnutrition in Peptic Ulcer"

April 21—Harry S. N. Greene, M.D., Professor of Pathology, Yale Univ. School of Medicine
Subject: "Metastasis"

April 27-28 (2-day Visiting Surgeon)—Owen Wangensteen, M.D., Professor of Surgery, Univ. of Minnesota School of Medicine
Subject: "The Surgery of Malignancy—The Second Look"

May 4-5 (2-day Visiting Pediatrician)—Edward Neuhauser, M.D., Radiologist, Childrens Hospital, Boston.
Subject: "Pediatric Radiology"

May 12—John Hope, M.D., Director of Radiology, Childrens Hospital of Philadelphia.
Subject: "Craniostenosis" (Premature Cranio-Synostosis)

May 19—Civil Defense—Oliver Cope, M.D.
Averill Liebow, M.D.

May 24-26 (3-day Visiting Surgeon)—John Lewis, M.D., Professor of Surgery, Northwestern Univ. School of Medicine.

June 1-2—A symposium—"The Emergency Room and Medical Practice Today"

June 21—House Staff Graduation-Alumni Day

SYMPOSIUM ON THE NEWBORN

Wednesday, April 11, 1962

Conducted by the Department of Pediatrics
Hospital of St. Raphael
New Haven, Connecticut

MORNING SESSION, 9:15 A.M.

9:15 A.M. Welcome and Opening Remarks. Paul F. McAlenney, M.D., Associate Clinical Professor of Pediatrics, Yale University School of Medicine.

9:30 A.M. Maternal Factors In Perinatal Morbidity. Robert E. L. Nesbitt, Jr., M.D., Chairman, Department of Obstetrics & Gynecology, State University of New York School of Medicine, Upstate Division, Syracuse, New York.

10:00 A.M. Prematurity. Harry H. Gordon, M.D., Director of Pediatrics, Sinai Hospital Associate Professor of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland.

10:30 A.M. Respiratory Disorders. Herbert C. Miller, M.D., Chairman, Department of Pediatrics, University of Kansas School of Medicine, Kansas City, Kansas.

11:00 A.M. Radiological Diagnosis. Edward B. D. Neuhauser, M.D., Chief Department of Radiology, The Children's Hospital Medical Center, Boston, Massachusetts.

11:30 A.M. Question and Answer Period.

12:00 NOON Luncheon Period.

AFTERNOON SESSION, 2:00 P.M.

2:00 P.M. Significance of Jaundice. Sidney S. Gellis, M.D., Chairman, Department of Pediatrics, Boston University School of Medicine, Director of Pediatrics, Boston City Hospital, Boston, Massachusetts.

2:30 P.M. Early Diagnosis of Congenital and Genetic Defects. Alexander J. Schaffer, M.D., Associate Professor of Pediatrics, Johns Hopkins University School of Medicine, Baltimore, Maryland.

3:00 P.M. Problem of Infections. Louis Gluck, M.D., Assistant Professor of Pediatrics, Yale University School of Medicine, New Haven, Connecticut.

3:30 P.M. Surgical Emergencies. H. William Clatworthy, Jr., M.D., Professor of Surgery, Ohio State University School of Medicine, Surgeon-in-Chief, The Children's Hospital, Columbus, Ohio.

4:00 P.M. Question and Answer Period.

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PROGRESS IN ANESTHESIOLOGY: I

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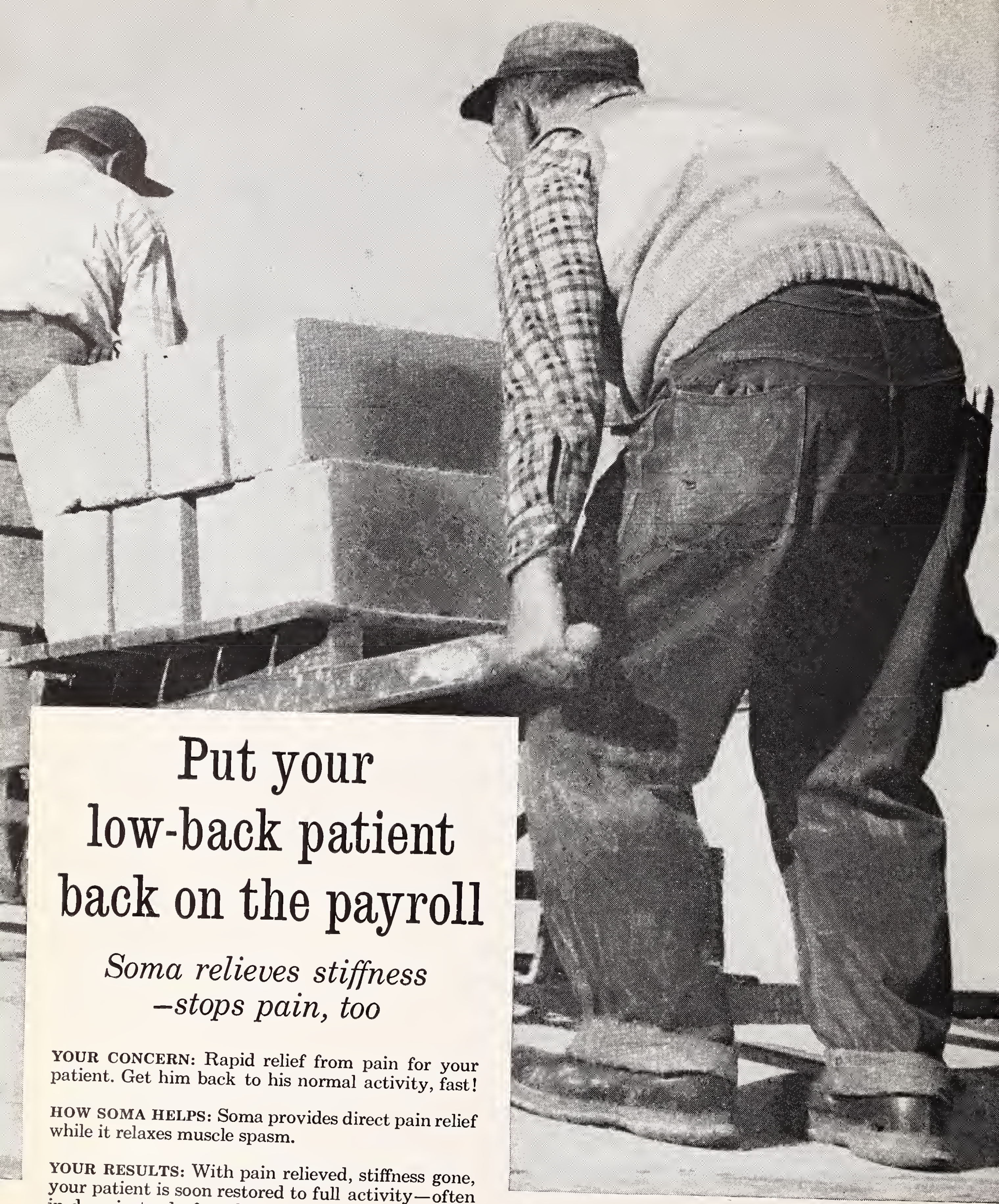

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Anesthesiology Of Today

STEVENS J. MARTIN, M.D.
Hartford

PRESENT-DAY anesthesiology, based on the clinical application of basic principles of physics, chemistry, physiology, pharmacology and related sciences, represents one of the newest of medical disciplines. It has become indispensible in the modern practice of medicine. Its progress since the days of Long, Morton, Wells, Snow, and others was enhanced considerably by the exigencies of both World Wars and by the appreciation of its advantages to the patient and to the surgeon in the post war eras. Its continued growth has been characterized not only by the introduction of ethylene, cyclopropane, sodium pentothal, carbon dioxide absorption apparatus and endotracheal techniques, but also by the initiation of residency programs in 1930, the organization of The American Society of Anesthesiologists, Inc., the publication of the first issue of the bimonthly journal, *Anesthesiology,* in 1940,[1,2] and the recognition of anesthesia as a medical specialty by the A.M.A.,[3] the Armed Forces,[4] and by leading hospitals in this country and abroad. In fact, anesthesia is regarded by many as America's contribution to world medicine.

Recent publications[5-11] indicate that progress in anesthesia has continued at a rapid rate. Some of the more significant contributions of the past two decades will be briefly summarized.

Newer Anesthetic Agents

Trichlorethylene was recommended for clinical anesthesia after the initial studies of Jackson and Hewer in 1934. It is a non-imflammable, volatile, liquid whose vapors are weakly anesthetic. Induction of anesthesia is slow and deep planes of anesthesia cannot be obtained safely and without complications. Accordingly, it is now used chiefly for analgesia, especially in obstetrics or for dental extraction. Atkinson states in his review article[12] that Trichlorethylene can be a safe and useful anesthetic agent "when used in minimal concentration." However, the clinical usefulness of this agent even for analgesia is now overshadowed by Halothane.

The clinical introduction of Halothane (Fluothane-2 bromo-2 chloro-1:1:1 trifluorethane), represents a great advance in the search for a potent, non-inflammable volatile anesthetic agent.[13] Its essential advantages are non-inflammability, rapid, smooth induction, diminution of the activity of laryngeal and pharyngeal reflexes, high potency, minimal postoperative vomiting and rapid recovery from anesthesia. Like any other anesthetic agent, however, it presents some disadvantages. Chief among these are hypotension, bradycardia, and a need for special "micromanipulation" control for its administration. A detailed evaluation of Halothane will be presented elsewhere in this symposium on anesthesia.

In 1953, Krantz introduced another potent halogenated, volatile, compound, Trifluorethyl Vinyl Ether (Fluomar), capable of producing analgesia or anesthesia.[14] It also produces rapid, smooth induction, muscular relaxation, virtually no laryngospasm or respiratory mucosa irritation, and only slight respiratory depression. Clinical evaluation of Fluomar is still in progress.

The endless search for the "ideal" intravenous anesthetic agent has resulted in the synthesis of several new drugs. Initial laboratory and clinical studies of some of these appeared promising. In 1950, Helrich, Papper, and Rovenstine[15] reported a favorable clinical evaluation in 1200 patients of a newly synthesized barbiturate derivative, Sodium 5-Allyl-5-(1-Methyl-butyl-2-Thiobarbiturate (Sodium Surital.) Howland et al[16] showed that 21-Hy-

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droxypregnanadione-Sodium Succinate Hydroxydione (Viadril), a steroid preparation, is a non-analgesic hypnotic, analogous to the thiobarbiturates, is less potent, slower in action than the ultra-short acting barbiturates, irritating to veins and subcutaneous tissue and may produce serious circulatory hypotension. Tait et al[17] and Cotten and Bay[18] investigated the laboratory and clinical effects of Dolitrone, a new non-barbiturate anesthetic agent, 5-Ethyl, 6-Phenyl-m-Thiazane-2, 4-Dione. The former report that Dolitrone is devoid of anesthetic potency but is an excellent amnesic. Fitzpatrick, Claire and Mersch[19] published their clinical observations on a new short-acting thiobarbiturate anesthetic agent, 5 (1-Methylbutyl)-5-2 (Methylthioethyl)-2-Thiobarbiturate Sodium (Neraval-Sodium). They claim Neraval has a "lowered milligram potency, diminished cumulative effect and an extremely rapid and complete recovery."

Recently, Lear et al[20] published clinical observations on the use of another newly synthesized intravenous anesthetic agent, N-Ethyl-1-Phenylcyclohexylamine Monohydrochloride (CI-400) (Cyclohexamine). Taylor and Stoelting[21] reported their findings last year on the intravenous injection of Methohexital Sodium (Brevital) in 3,340 patients undergoing a variety of operative procedures. They concluded that this new ultra-short oxygen barbiturate in 1 per cent concentration is a safe anesthetic agent providing quick induction, short duration of action and rapid emergence from anesthesia. It appears at the moment that none of the newly introduced agents for intravenous administration has replaced the established popularity of Thiopental Sodium.

The endless search for new, safer and more effective agents for regional anesthesia has continued with unabated enthusiasm. Bonica's classic volume on The Management of Pain[22] attests not only to the ready acceptance of this type of anesthesia but also to the prodigious efforts made towards its refinement for clinical use.

Following World War II, procaine, metycaine and nupercaine were overshadowed by the advantages of Tetracaine (Pontocaine) for all types of regional anesthesia. Its popular use, however, has recently been challenged by the introduction of Lidocaine (Xylocaine),[23] 2 Chloroprocaine (Nasacaine),[24] and Carbocaine (Brand of Mepivacaine Hydrochloride).[25,26] All allegedly possess significant advantages of quick onset, long duration, and minimal complications. Continued evaluation will determine eventually the order of clinical usefulness of these newer drugs. Suffice it to say that at the moment, Lidocaine and Tetracaine appear to be the most popular agents for regional anesthesia since the synthesis of procaine hydrochloride.

Adjuvants In Anesthesia

Adjuvants, in one form or another, have been employed in anesthesia for years. However, their use during the past two decades has become exceptionally popular and "the rule" rather than the exception. Many adjuvants have been made available in this period, the most common of which are: (1) the muscle paralysants, (2) the ataractic drugs, (3) the use of hypotensive technique, and (4) the use of hypothermia during anesthetic management.

Without question, the introduction of muscle paralysants into clinical anesthesia constitutes one of the most outstanding advances in the past few decades. Eckenhoff states, "no other anesthetic agent or adjuvant except oxygen is so widely used."[27] New anesthetic techniques and concepts have been developed. The slow challenging, artful induction of general anesthesia for endotracheal intubation has been replaced by a rapid procedure often referred to as a "crash induction." The voluminous literature on the curare-like drugs has been recently summarized in a symposium by leading contributors in the field.[28] Such a symposium covers not only the historical background, chemistry, and pharmacology but also clinical uses of muscle paralysants in: (1) facilitating induction of anesthesia, endotracheal intubation, muscular relaxation during surgery, (2) the control of coughing, "bucking," laryngospasm, convulsions during anesthesia, and "shivering" during hypothermia, and (3) the treatment of idiosyncracy, overdose (with apnea and/or circulatory depression), synergism and increased action due to disease or altered function of organs.

Clinical usefulness of the ataractic drugs has been accepted not only by the medical profession as a whole but particularly by the neuropsychiatrists and anesthesiologists. Often referred to as "tranquilizers," they represent a new classification of drugs with a variety of actions.[29] As adjuvants to anesthesia, they can provide psychic sedation, reduce the total amount of anesthetic agents needed, decrease secretory activity of the respiratory tract, and serve as antiemetics. They are therefore of significant use in preoperative medication of patients[30] and in postoperative sedation and control of emesis. They are commonly employed in conjunction with hypothermia. Undesirable effects of *some* ataractic drugs are sympatholytic and adrenolytic action and myocardial depression—all leading to hypotension. Recent studies of newer preparations have revealed further advantages of the ataractic drugs.[31]

The third most significant adjuvant to anesthesia has been the use of hypothermia. The generalized depression of cellular metabolism and concurrent decrease in oxygen utilization are conducive to anesthesia. Accordingly, only a minimum of anesthetic drugs are required for surgery. McQuiston introduced its use in 1949, when he employed such total body cooling during operations on children with cyanotic heart disease. Its use is now well established in selected cases of open heart surgery, great vessel operations, neurosurgery, and some types of general surgery. It is now recommended and employed therapeutically by some anesthesiologists in cases of hyperpyrexia, cerebral injury, cardiac arrest, asphyxia neonatorum, hematemesis, shock and burns. Recent publications by Virtue,[32] Little,[33] and Eckenhoff [34] have assessed in greater detail the clinical advantages, disadvantages, limitations and complications of hypothermia. Its present use by anesthesiologists as an adjuvant is highly acclaimed.

Hypotension as an adjuvant in the maintenance of anesthesia was received with enthusiasm initially following its introduction by Gardner in 1946.[35] The main purposes of producing hypotension were to conserve blood volume by minimizing blood loss, to provide a relatively bloodless field for the surgeon, and to reduce thereby operating time. A variety of hypotensive techniques were developed, the most popular ones of which are: (1) arterial blood letting and re-infusion at the end of surgery, (2) single or intermittent high spinal or epidural anesthesia, (3) mechanical devices or suction apparatus often used in conjunction with ganglionic paralysants, and (4)) the use of ganglionic paralysants such as the methonium compounds and Arfonad. Recent studies summarized in an excellent monograph by Little,[36] have revealed many hazards when employing hypotensive techniques. Accordingly, the early enthusiasm for this adjunct to anesthetic management has been replaced by a more conservative approach.

Apparatus And Techniques

In addition to sound, basic instruction, mature clinical judgment and the use of established agents, adequate apparatus and techniques are necessary for modern, safe, optimum anesthetic management. Progress in the past two decades reveals a series of developments too numerous to describe in this short presentation. Suffice it to say, newer apparatus and techniques have provided significant refinements and added safety in the anesthetic management of operative patients from "the womb to the grave," for any type of elective surgery, some never contemplated or attempted before, and for emergency operations in patients with severe, multiple physiological derangements.

Some of the newer apparatus and techniques of the past twenty years are listed as follows:[37]

1. Apparatus for non-rebreathing techniques.
2. Newer endotracheal and endobronchial tubes.
3. Various models of laryngoscopes for the newborn, child, and adult.
4. Continuous spinal, caudal and epidural apparatus and techniques.
5. Apparatus for hypothermia and rewarming.
6. Ventillators—Emerson, Jefferson, Stephenson, etc.
7. Pharyngeal airways—metal, rubber, plastic, S-shaped.
8. Apparatus for extra-corporeal circulation—whose maintenance is often the responsibility of the anesthesiologist.
9. Servo-anesthetic apparatus and techniques.
10. Monitors[38] such as the electrocardiograph, electroencephalograph, oesophageal stethoscopes, visual and/or auditory cardiac monitors, cardiotachometer, phonocardiometer, arterial and venous pressure gauges, blood flow meters, Liston-Becker CO_2 measurement apparatus, oximeters, polarographic measurement of tissue O_2 partial pressure, ventilometers, etc.

Instruction In Anesthesia

Considerable progress has been made in providing instruction in anesthesia. In 1941, there were about 51 two-year residency programs, approved by The American Board of Anesthesiology available for candidates. Today, as a result of post-war demands by surgeons, hospital administrators and the public at large, there are 215 departments providing such instruction for 1180 residents. Last year, 217 candidates were certified by the Board as compared to 18 in 1940, 132 in 1950.[39]

In addition, anesthesia instruction has been initiated in medical schools in the basic and clinical years, and made available during an internship in many hospitals. Other sources of postgraduate continuing education in anesthesia have been those of local, state, regional and international societies of anesthesia. Perhaps of greatest popularity is the Annual Refresher Course Program of The American Society of Anesthesiologists, Inc., now in its 12th year of operation. A 100 per cent attendance for 3,720 seats, for 108 lecture courses, covering all aspects of anesthesia was recorded last year.[40]

Analgesics

The search appears endless for the "ideal narcotic analgesic agent" that is more effective, less toxic, with little or no side reactions, non-addicting, with a quicker onset and longer duration of action by oral or parental route than the opiates now available. Accordingly, new preparations are synthesized and evaluated periodically.[41] They are in great demand by the anesthesiologist keenly interested in perfecting all aspects of anesthetic management. Recently,[42-44] considerable effort has been expended in synthesizing and evaluating new analgesics such as the Methadones, Levodromoran (Levophan), Anileridine Dihydrochloride (Leritine), D-propoxyphen Hydrochloride (Darvon), Phenazocine (Benzomorphan-NIH), and Phenapromid.

Analeptics, Anti-narcotics And Antagonists

Continued and keen interest has been noted, particularly by pharmacologists and anesthesiologists, in preparations which will counteract undue depression of the central nervous, circulatory, and respiratory systems produced by the narcotics and/or barbiturates. Recently, Bemegride, Ritalin and Daptazole were introduced as respiratory stimulants. Their clinical usefulness is not yet established. Further, most anesthesiologists rely on the old dictum, "that prevention is better than the cure."[45] Admittedly these new agents are analeptics and convulsants but they "neither displace the (depressant) offending agent from its receptors nor hasten its elimination."[45]

Telford and Keats[46] recently reviewed data concerning narcotic-narcotic antagonist mixtures which were supposed to provide analgesia equal to that of the narcotic alone and with lesser respiratory depression. They concluded that the data on such mixtures did not confirm this contention.

Inhalation Therapy

Because of their training and their keen concern over aberrations of the respiratory system, many anesthesiologists supervise the inhalation therapy service in a hospital. Their contributions recently have greatly facilitated the prevention and treatment of respiratory complications.[47,48] Some of the most important of these are: (1) positive pressure apparatus for O_2 therapy, (2) intermittant hyperventilation techniques, (3) portable apparatus for O_2 treatment in the ambulatory patient with chronic pulmonary disease, and (4) the "fog room." Without question, the development and use of the "fog room" by Tovell et al,[49,50] in the treatment of certain types of infection of the respiratory tract, particularly in children, has proven to be an outstanding contribution. It provides a form of humidification definitely advantageous over other types of therapeutic humidity. The authors have found the "fog room" helpful also in the treatment of hyperthermia or to produce a moderate hypothermia in neurosurgical patients suffering from brain damage due to surgery or trauma or to infection (one case of encephalitis).

Resuscitation Of The Newborn

One of the major causes of perinatal distress or neonatal mortality is asphyxia due to anesthesia, obstetrical management, prematurity, or maldevelopment of the foetus.[51,52] Intense interest in minimizing and eliminating this factor has been shown not only by obstetricians and pediatricians by anesthesiologists as well. Recent literature reveals the introduction of new concepts and practices. Thus we see: (1) the obstetrical anesthesiologist, "the specialist within a specialty,"[53,54] (2) the Apgar score of newborns[55,56]—a method of evaluating vital physiological signs, (3) the employment of less sedation during first stage of labor and of more regional anesthesia during delivery such as pudendal and saddle blocks, caudal and epidural techniques, (4) the use of resuscitative procedures such as mouth-to-mouth breathing, endotracheal suctioning and oxygenation, intravenous Nalline to counteract respiratory depression due to opiates and closed chest cardiac massage.

There is no question considerable progress has been achieved in reducing neonatal mortality due to preventable asphyxia. However, there is still urgent need for more investigations.

Postanesthesia Recovery Unit

Modern anesthetic management includes not only the preoperative evaluation and medication, and the actual administration of anesthesia but also the prevention and treatment of postanesthetic complications. This has been greatly facilitated by the organization of the post-anesthesia recovery room initiated in the last two decades.[57,58] A variety of plans for the postanesthetic care of patients have been developed providing patient care extending from a few hours to several days. The success of all plans, however, depends at least upon the following: (1) the concentration of highly trained personnel under the supervision of a staff anesthesiologist, (2) the availability of modern apparatus, techniques and drugs for resuscitation of the respiratory, cardiovascular, and central nervous systems, and (3) minimum time and distance in the transport of the patients from the operating room table to the postanesthesia recovery room. Recently, other physicians as well as anesthesiologists have organized "intensive care units" for the concentrated specialized treatment of acutely ill medical, as well as surgical patients.[59]

Post anesthesia recovery units are now recognized as one of the most important developments in anesthesia in the past two decades. They are now indispensable in hospitals where anesthesia is administered.

Summary

Some of the more significant contributions in the field of anesthesiology during the past two decades have been briefly summarized. There can be no question that anesthesiology has earned its rightful place in the optimum care of the sick. As one of the newer medical disciplines, it has become indispensable in the modern practice of medicine.

REFERENCES

1. Betcher, A. M., Ciliberti, B. J., Wood, P. M., and Wright, L. H.: The jubilee year of organized anesthesia. Anesthesiology, 17: 226-264, 1956.

2. Wood, P. M.: American Board of Anesthesiology. J.A.M.A., 139: 11-13, (Jan. 1), 1949.

3. A.M.A. Council on Medical Education and Hospitals: Approved Residencies and Fellowships. J.A.M.A., 117: 767 (Aug. 30), 1941.

4. Walson, C. M.: Station hospital organization. Army Med. Bulletin, 54: 3, (Oct.) 1940.

5. Martin, S. J.: The present day anesthesiologist. J. Iowa State Med. Soc., pp. 1-14, Sept. 1950.

6. Martin, S. J.: Recent contributions in anesthesiology. Medical Record and Annals, Texas, 52: 231-237, Sept. 1959.

7. Fabian, L. W. and Carnes, M. A.: Recent progress in anesthesiology. Am. Surg., 27: 173-175, May 1961.

8. Hingson, R.: World anesthesia. Anes. & Analg., 40: 316-322, May-June 1961.

9. Karp, M.: Changing concepts and present trends in anesthesiology. Surg. Clin. of N. America, 59: 219-229, Feb. 1959.

10. Sadove, M. S. and Shima, A. T.: General development in the field of anesthetic agents. Postgrad. Med., 24: 289-295, Sept. 1958.

11. Grey, T. C.: Advances in anesthesia. The Practitoiner (Eng.), 183: 489-498, Oct. 1959.

12. Atkinson, R. S.: Trichlorethylene anesthesia. Review article. Anesthesiology, 21: 67-77, 1960.

13. Johnstone, M.: Halothane—the first five years. Anesthesiology, 22: 591 (July-August), 1961.

14. Krantz, J. C., Jr., Carr, C. J., Lu, G., and Bell, F. K.: Anesthesia XL: The anesthetic action of trifluoroethyl vinyl ether. J. Pharm. Exp. Therap., 108: 488 (Aug.), 1953.

15. Helrich, M., Papper, E. M., and Rovenstine, E. A.: Surital sodium: A new anesthetic agent for intravenous use. Preliminary clinical evaluation. Anesthesiology, 11: 33-40, 1950.

16. Howland, W. S., Boyan, P., and Wang, Kuo-Chen: The use of a steroid (Viadril) as an anesthetic agent. Anesthesiology, 17: 1-8, 1956.

17. Tait, C. A., David, D. A., Grosskrentz, D. C., and Boniface, K.: A new intravenous anesthetic—Dolitrone. Anesthesiology, 17: 536-546, 1956.

18. Cotten, M. DeV. and Bay, E.: Comparison of cardiovascular properties of a new thiobarbiturate intravenous anesthetic agent with those of thiopental. Anesthesiology, 17: 103-111, 1956.

19. Fitzpatrick, L. J., Claire, D. C., and Marsch, M. M.: Methitural sodium (neraval sodium): A new ultrashort acting intravenous anesthetic. Anesthesiology, 17: 684-689, 1956.

20. Lear, E., Suntay, R., Pallin, I. M., and Chiron, A. E.: Cyclohexamine (CI-400): A new intravenous agent. Anesthesology, 20: 330-335, 1959.

21. Taylor, C. and Stoelting, V. K.: Methohexital—a new ultrashort acting barbiturate. Anesthesiology, 21: 29-34, 1960.

22. Bonica, J.: The management of pain. Lea & Febiger, Phila., Pa., 1953.

23. Gordh, T.: Xylocaine—a new local anesthetic agent. Anesthesiology, 4: 4, 1949.

24. Nellermoe, C. W., Moore, D. C., Bridenbaugh, L. D., Cassady, G. N., and Braly, B.: A clinical appraisal of 2 chloroprocaine in continuous caudal obstetrical anesthesia. Anesthesiology, 21: 269, 1960.

25. Ekenston, B. and others: Trials with carbocaine, a new local anesthetic drug. Brit. J. Anaesthesia, 28: 503, Nov. 1956.

26. Ludneua, F. P., Hoppe, J. O., Coulston, F., and Drobeck, H. P.: The pharmacology and toxicology of mepivacaine, a new local anesthetic. Toxicol. & Appl. Pharmacol., 2: 295, May 1960.

27. Eckenhoff, J. E.: Introduction—a symposium on muscle relaxants. Anesthesiology, 20: 407, 1959.

28. Symposium on muscle relaxants. Anesthesiology, 20: 407-534, 1959.

29. Gold, M. I. and Stone, H. H.: The tranquilizing drugs: A classification and pharmacological survey. Anesthesiology, 18: 357, 1957.

30. Lear, E., Suntay, R., Fisch, H. J., Chiron, A. E., and Pallin, I. M.: Ataraxic drugs in preanesthetic medication, blind studies in 1852 patients. Anesthesiology, 22: 529, (July-August), 1961.

31. Blatchford, E.: Studies of antiemetic drugs: a comparative study of cyclizine (Marzine), pipamazine (Momidine), trimethobenzamide (Tigan) and hyoscine. The Canad. Anaes. Soc. J., 8: 159-165, (March), 1961.

32. Virtue, R. W.: Hypothermic anesthesia. Charles C. Thomas, Springfield, Ill., 1955.

33. Little, D. M.: Hypothermia (review article). Anesthesiology, 20: 842-877, 1959.

34. Eckenhoff, J. E.: The use of controlled hypotension for surgical procedures. Surg. Clin. of N. America, 35: 1579, 1955.

35. Gardner, W. J.: Control of bleeding during operation by induced hypotension. J.A.M.A., 132: 572, 1946.

36. Little, D. M.: Controlled hypotension in anesthesia and surgery. Charles C. Thomas, Springfield, Ill., 1956.

37. Adriani, J.: Techniques and procedures of anesthesia. Charles C. Thomas, Springfield, Ill., 2nd Ed., 1956.

38. Dornette, W. L.: Instrumentation in anesthesiology. Lea & Febiger, Phila., Pa., 1959.

39. Personal Communication—Office of American Board of Anesthesiology, Hartford, Conn., 1961.

40. Bonica, J.: Annual report of refresher course committee. Handbook for Delegates, Amer. Soc. of Anes., Inc., p. 112, 1961.

41. Friend, D. G.: Analgesic drugs VIII, narcotics II, N.E.J. Med., 257: 1182, 1957.

42. Valentine, G. and Martin, S. J.: Evaluation of a new analgesic agent—D-propoxyphene hydrochloride (Darvon). J. Anes. & Analg., 38: 50-55, 1959.

43. Eckenhoff, J. E.: Phenazocine, a new benzomorphan narcotic analgesic. Anesthesiology, 20: 355, 1959.

44. DeKornfeld, T. J. and Lasagna, L.: A controlled clinical evaluation of two new analgesics, phenazocine and phenapromid. Anesthesiology, 21: 159, 1960.

45. Adriani, J.: Respiratory stimulants. Anesthesiology, 21: 214, 1960.

46. Telford, J. and Keats, A. S.: Narcotic-narcotic antagonist mixtures—review article. Anesthesiology, 22: 465 (May-June) 1961.

47. Saklad, M.: Inhalation therapy and resuscitation. Charles C. Thomas, Springfield, Ill., 1953.

48. Barach, A. L.: Inhalation therapy, advances and retreats. Anesthesiology, 22: 367, (May-June) 1961.

49. Tovell, R. M. and Arnold, G. T.: The production of fog as a therapeutic agent. Anesthesiology, 17: 400, 1956.

50. Tovell, R. M. and Little, D. M.: The utilization of fog as a therapeutic agent. Anesthesiology, 18: 470, 1957.

51. Crawford, J. S.: Principles and practice of obstetrical anesthesia. Charles C. Thomas, Springfield, Ill., 1959.

52. Abramson, H.: Resuscitation of the newborn infant. The C. V. Mosby Co., St. Louis, Mo., 1960.

53. Hingson, R. A. and Hellman, L. M.: Anesthesia for obstetrics. J. B. Lippincott Co., Phila., Pa., 1956.

54. Hershenson, B. B.: Obstetrical anesthesia. Charles C. Thomas, Springfield, Ill., 1955.

55. Apgar, V.: Proposal of new method of evaluation of newborn infant—current res. Anes. & Analg., 32: 260, 1953.

56. Apgar, V. et al.: Evaluation of the newborn infant—second report. J.A.M.A., 168: 1985, 1958.

57. Sadove, M. S. and Cross, J. H.: The recovery room—immediate postoperative management. W. B. Saunders Co., Phila., Pa., 1956.

58. Adriani, J. and Parmley, J. B.: The recovery room: a symposium. Charles C. Thomas, Springfield,. Ill., 1958.

59. Saklad, Meyer: The special care unit: its place in postoperative care. Anesthesiology, 20: 822, 1959.

In general the chief social condition of scientific method is a widespread desire for truth that is strong enough to withstand the powerful forces which make us cling tenaciously to old views or else embrace every novelty because it is a change. Those who are engaged in scientific work need not only leisure for reflection and material for their experiments, but also a community that respects the pursuit of truth and allows freedom for the expression of intellectual doubt as to its most sacred or established institutions. Fear of offending established dogmas has been an obstacle to the growth of astronomy and geology and other physical sciences; and the fear of offending patriotic or respected sentiment is perhaps one of the strongest hindrances to scholarly history and social science. On the other hand when a community indiscriminately acclaims every new doctrine, the love of truth becomes subordinated to the desire for novel formulations. M. R. Cohen and E. Nagel, *Introduction to Logic and the Scientific Method.*

Steroids And The Anesthesiologist

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The class of compounds known as steroids provides in their presence, absence, or excess, both trouble and work for the anesthesiologist. From the most simple, natural steroid, cholesterol, to the more complex synthetic steroids now available, these compounds profoundly affect the patients whom we treat. In fact, some are used to produce anesthesia.

The entire series of steroids is based on a tetracyclic ring structure consisting of three six-carbon membered rings and one five-membered ring (Figure I). One methyl group is attached at the intersection of two six-membered rings and another at the intersection of the five and six-membered rings. A side chain of eight carbon atoms is attached to the peak of the five-carbon ring. This structure has been shown by Block et al[1] to be synthesized in the body from acetic acid units.

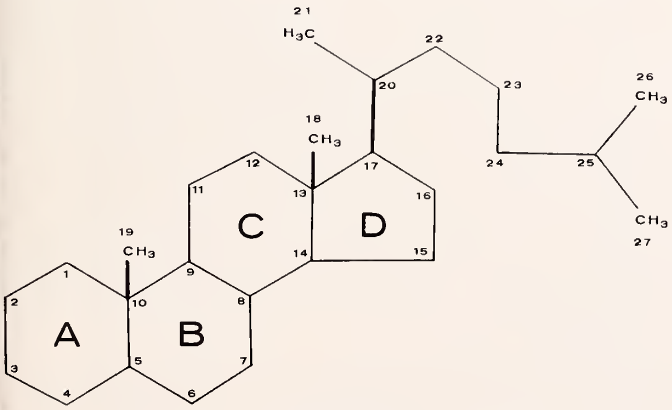

Figure I
The basic structure of the steroids.

Simplest of the steroids is cholesterol which is widely distributed throughout the body. Only when present in abnormal amounts in particular organs does cholesterol become a problem. The presence of cholesterol gall stones is frequently a reason for a cholecystectomy. The presence of cholesteral deposits in the aorta, coronaries, and other arteries is a source of worry for anesthesiologists both in our patients and in ourselves. Another series of simple steroids, the sitosterols, have been reputed to inhibit the development of these unwanted concentrations of cholesterol.

Also included among the steroids are the Vitamin D's and their precursors. The rib cage deformities which result from childhood rickets can limit the respiration during anesthesia and if very severe, distort the cardiac structures and can cause hypotension in some positions during anesthesia. Some of the rachitic defects are susceptible to orthopedic correction.

Another series of compounds not usually regarded as steroids are the cardiotonic glycosides. Digoxin and digitoxin are glycosides of steroids differing only in a hydroxy group. Similarly, lanatoside C, ouabain, strophanthin, and a number of vegetable and animal poisons belong to this group of substances. Although not regularly employed in anesthesia, the value of these therapeutic agents in preparing the cardiac patient for surgery and in rapid treatment of cardiac failure during anesthesia cannot be overemphasized.

Some classify the veratrine alkaloids in the steroid family of compounds. They are also tetracyclic compounds but the five-member and one six-membered ring have changed places. Their properties as antihypertensive agents are of value in acute hypertensive episodes. The margin of safety

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between an adequate dosage and excessive side effects is small. Together with other antihypertensives, the veratrine alkaloids can be used also for maintenance therapy of hypertension.

A more important group of steroids includes the sex hormones. These are classed as estrogenic, androgenic, and gestogenic steroids. During pregnancy, the estrogenic and gestogenic hormones present in large amounts alter the physiology and psychology enormously. Similarly their lack at the climacteric produces a catabolic and depressive pattern of behavior. The stimulative effects of estrogens on the breast and androgens on the prostate become vitally important when these organs develop cancer. As a means of removing these steroids completely from the circulation, a sequence of hormone therapy and castration in men and also adrenalectomy and finally hypophysectomy in women is often the course pursued. The last two procedures require most extreme care and preparation mainly because of the dysfunction resulting from loss of the adrenal hormone.

Among the estrogenic hormones are a number with some anesthetic properties. After demonstration of this anesthetic potency by Selye[2,3] subsequent investigations[4,5] produced 21-hydroxypregnanedione or hydroxydione (Viadril®) which was first used clinically by Murphy et al in 1955.[6] The steroid was irritating to veins and was slow in inducing sleep but produced a euphoric post anesthetic state. Since its properties and potency were so similar to Pentothal®, this anesthetic steroid has not become popular.

Of greatest import to anesthesiology among the steroids are the adrenocortical hormones. Very early experiments with animals indicated that total bilateral adrenalectomy resulted in early death of the animals. Rogoff and Stewart[7] in 1927 showed that adrenalectomized dogs could be maintained on a saline and glycerol extract of dog adrenals. Subsequent investigations isolated compounds from adrenal extracts which influenced either liver glycogen content or salt and water excretion. Desoxycorticosterone is representative of the latter mineralo-corticoids and was synthesized before it was actually isolated.[8] In the form of the acetate (DOCA) it is used to treat adrenal insufficiency.

In 1953, Simpson et al[9] isolated from the armorphous fraction of adrenal extract residues a very potent mineralo-corticoid, aldosterone. Aldosterone was found to be over 100 times as potent as DOCA and was present in concentrations of 0.05 microgram per cent in the circulating blood.[10] The steroid was found to regulate salt excretion but unlike desoxycorticosterone did not cause water retention. In 1956, Conn and Lewis[11] reported a series of cases of hyperaldosteronism where primary hyperaldosteronism was distinguished by lack of edema and the presence of hypokalemia. Hypertension, alkalosis, and muscle weakness were common to both primary and secondary hyperaldosteronism.

Of interest to the anesthesiologist is the concept that aldosterone production regulates the "effective" arterial blood volume. Many of the conditions resulting from surgery and anesthesia are noted to cause increased aldosterone production. These include: restriction of sodium, or water, or both, blood loss, decrease in cardiac output or decrease in blood pressure in the carotid sinus[12] and administration of potassium in large amounts.[13] Post operative retention of sodium and water may be a result of a transient hyperaldosteronism[14] and increased amounts have been demonstrated in adrenal vein blood following abdominal operations.[15]

Of the gluco-corticoids isolated from adrenal gland tissue, hydrocortisone is the principal natural product of the adrenals and is the main corticoid circulating in the blood.[16] Cortisone has activity approximately equal to that of hydrocortisone as a gluco-corticoid. Both of them also have mineralo-corticoid activity and can cause salt and water retention.

As in the case of aldosterone, anesthesia and surgery stimulate the excretion of the gluco-corticoids.[11] Ether anesthesia either directly, or indirectly through its stimulation of catechol amine release from the adrenal medulla, raises the level of circulating hydrocortisone.[18,19] Other general anesthetics have little or no such effect. The stress of surgery, however, will cause a rise during maintenance of anesthesia with inhalation agents. Barbiturates and opiates prevent this stress reaction. Since ACTH causes a rise in 17-hydroxycorticosteroids after opiates[20] and not after barbiturates,[21] barbiturates may block synthesis of corticoids by enzymatic inhibition as well as a central suppression in the hypothalmus. Local and spinal anesthetics prevent stimuli from reaching the hypothalamamic areas which produce ACTH-releasing-substance which then acts on the pituitary.[18,19] Hypothermia is also believed to depress the pituitary-adrenal response to the stress of operation.[22] Aside from these effects of anesthetics, both hypercarbia and hypoxia produce a rise in circulating corticoids. Probably these are effects on the pituitary mediated by the catechol amines.

Relatively rapid changes in circulatory levels of adrenocorticoid hormones can occur. Both aldosterone and hydrocortisone are found to have biologic half lives of about half an hour.[20,23] This reduction of their concentration by half during each half hour postpones the adrenocortical effects of bilateral adrenalectomy to the post operative period in the recovery room. The intravenous injection of 100 milligrams of hydrocortisone increases the circulating level of 17-hydroxycorticosteroids to 100 to 200 microgram per cent and a single dose should maintain the level above normal for 4-8 hours. Cortisone acetate which can be given either orally or intramuscularly has a similar duration but is more slowly absorbed.

Other effects of the glucocorticoids bring them into use more commonly than for maintenance therapy after adrenalectomy or in Addison's disease. The anti-inflammatory and lymphopenic properties have resulted in widespread use of the cortisons in arthritis, asthma and in the "collagen diseases" and leukemias. The administration of a maintenance of a therapeutic dose of adrenocorticoids may be sufficient to depress the pituitary secretion of ACTH. The adrenal cortex in the absence of stimulation usually becomes atrophic. Although atrophy may not be present in every case, patients who have had cortisone or hydrocortisone therapy for more than a day or so, or who have been receiving other synthetic analogs should be considered susceptible to acute adrenal insufficiency under the stress of operation,[24,25] even though the course of medication was given months to years previously.

The usual course of therapy we employ for the patient who is on maintenance or who has a history of a course of medication with any type of adrenosteroids is to change the patient's daily dose to 200 milligrams of cortisone or hydrocortisone beginning the day prior to operation. Cortisone or hydrocortisone 150 milligrams is given intramuscularly just before the patient goes to the operating room. During the operation, hydrocortisone 100 milligrams diluted in a liter of 5 per cent glucose is infused slowly. This infusion is discontinued in the recovery perod if no signs of adrenal crisis appear. Maintenance on 200 milligrams of steroid per day is continued for two or three days post operatively and then the dose is gradually reduced to the previous maintenance level.

Preparation for bilateral adrenalectomy with the corticoids starting on the day before surgery, greatly reduces the difficulties encountered when treatment is delayed until operation or after the procedure. Various schedules of hormonal preparation can be followed but if possible a single schedule should be adopted and mimeographed orders used to ensure uniformity or therapy (Table I). As with patients on maintenance dosage of adrenosteroids, therapy should start the day before the operation and gradual reduction to a maintenance dose should take about a week. During operation the major changes in blood pressure are either postural or result from the release of catechol amines as the adrenals are handled. After removal of the second adrenal, a period of hypotension often is seen which can be controlled by noradrenalin or other vasopressors administered by continuous intravenous drip for a few minutes or by a single dose of one of the longer acting vasopressors. As with patients on cortisone maintenance, a continuous drip of hydrocortisone in glucose is maintained throughout the operation and into the recovery period.

TABLE I

HORMONAL PREPARATION FOR BILATERAL ADRENALECTOMY*

Day "Minus One"

Cortisone, 50 mg. IM q 6 hours until midnight (6 A.M., 12 N, 6 P.M., 12 M)
DOCA, 5 mg. IM at 9 A.M.
NaCl, 4 gm. at 6 P.M.

Day "Zero" (operation)

Cortisone, 150 mg. IM—given on call to OR.
DOCA, 5 mg. IM given on call to OR.

During Operation

One unit of blood + Hydrocortisone intravenously (100 mg. in 500 cc. 5 per cent dextrose).

Immediately after Operation

Cortisone, 50 mg. IM and then q 4 hours.

Day "Plus One"

Cortisone, 50 mg. IM q 6 hours.
DOCA, 5 mg. IM at 9 A.M. if blood pressure is low.

* Excerpt from regimen of Dao.[26]

With these precautions most of the hormonal problems are obviated. Frequently, the patient's underlying disease causes most difficulty. Particularly with breast cancer, widespread pleural and lung mestastases encroach on the lung. Several patients have been carried through surgery with only 500 to 1000 cc. vital capacities and less than a liter functional residual lung volume. The presence of ascites and pleural effusion also contribute to the problems of ventilation. Bone metastases can very easily be converted to pathologic fractures on turning. Occasionally superior vena cava syndrome or pericardial effusions can produce severe circulatory embarrassment.

In the postoperative period the adrenal crisis is the most feared complication but with good preparation should be infrequent. The distinction between crisis and hemorrhage shock is not easy. Both exhibit the symptoms of hypotension, nausea, vomiting, and vague discomfort progressing to coma. With an adequate preparation with cortisone and DOCA, the hydrocortisone drip can maintain an adequate supply of circulating hormone. A vasopressor can be used to try to restore an adequate blood pressure and additional hydrocortisone and

DOCA given. These measures should rapidly return the pressure to normal in adrenal crisis. Because of the poor circulation, DOCA which must be given intramuscularly may not be very effective and doses of 10 to 20 milligrams may be needed. If hydrocortisone alone is used, up to 500 milligrams may need to be given before a response is seen since its mineralo-corticoid effect is not great. In hemorrhagic shock, the rapid administration of blood should improve the circulation at least temporarily.

The patient in hypotension following other types of operations also can be unsuspectedly in adrenal crisis. Bronchogenic carcinoma, for example, frequently metastasizes to the adrenals early in the course of the disease. When the diagnosis is finally suspected, 100 milligrams of hydrocortisone intravenously, and 10 to 20 milligrams of DOCA intramuscularly can be given as a therapeutic trial along with vasopressor and glucose. In such cases, larger amounts of hydrocortisone may be contraindicated because other underlying causes for hypotension are more likely and the side effects of large doses of adrenocorticoids retard surgical convalescence.

Undesired side effects of adrenocorticoids on the post operative patient are impairment of wound healing, impaired reaction to infections and the possibility of thrombosis. Some studies have shown that cortisone promotes implantation of carcinoma cells circulating or injected in the blood stream.[27, 28] Other studies using different tumors do not show this response.[29] More important from the anesthesiologist's standpoint is the possible prolongation of awakening time after barbituates. During arousal after overdosage of barbiturates, a relapse into unconsciousness occurred when cortisone was given.[30]

In the anesthesiologist's armamentarium, the steroids can be considered a double edged sword. For good they can mantain cardiac tone, vasoconstriction, and metabolic balance. For ill they can be cardiac poisons, produce hypertension and prevent normal maintenance of the body water, electrolytes, and energy stores. Potent drugs, however, usually have undesirable side effects and are always poisons in excess dosage. As anesthesiologists we must balance their hazards against their physiologic actions and be ready to recognize the dangerous signs of their lack or overdosage.

REFERENCES

1. Block, K. and Rittenberg, D.: On the utilization of acetic acid for cholesterol formation. J. Biol. Chem., 145: 625, 1942.

2. Selye, H.: Studies concerning the anesthetic action of steriod hormones. J. Pharmacol. Exp. Ther., 73: 127, 1941.

3. Selye, H.: Correlations between the chemical structure and the pharmacological actions of the steroids. Endocrinology, 30: 437, 1942.

4. Laubach, G. D., P'an, S. Y., and Rudel, H. W.: Steroid anesthetic agent. Science, 122, 78, 1955.

5. P'an, S. Y., Gardocki, J. F., Hutcheon, D. E., Rudel, H. W., Kodet, M. J., and Laubach, G. D.: General anesthetic and other pharmacological properties of a soluable steroid, 21-hydroxypregnanedione sodium succinate. J. Pharmacol. Exp. Ther., 115: 432, 1955.

6. Murphy, F. J., Guadagni, N. P., and DeBon, F.: Use of steriod anesthesia in surgery. J.A.M.A., 158: 1412, 1955.

7. Rogoff, J. M. and Stewart, G. N.: The influence of adrenal extracts on the survival period of adrenalectomized dogs. Science, 66: 327, 1927.

8. Steiger, M. and Reichstein, T.: Desoxy-cortico-steron (21-Oxy-progesteron) Aus Δ^5-3-Oxy-Atio-Cholensaure. Helv., 20: 1164, 1937.

9. Simpson, S. A., Tait, J. F., Wettstein, A., Neher, R., von Euw, J., and Reichstein, T.: Isolierung Eines Neven Kristallisierten Hormons Aus Nebennieren Mit Besonders Hoher Wirksamkeit Auf Den Mineralstoffwechsel. Experientia, 9: 333, 1953.

10. Simpson, S. A. and Tait, J. F.: Recent progress in methods of isolation, chemistry, and physiology of aldosterone. Research, 11: 183, 1955.

11. Conn, J. W. and Lewis, L. H.: Primary aldosteronsim, a new clinical entity. Ann. Int. Med., 44: 1, 1956.

12. Bartter, F. C., Liddle, G. W., Duncan, L. E., Jr., Barber, J. K., and Delea, C.: The regulation of aldosterone secretion in man: the role of fluid volume. J. Clin. Invest., 35, 1306, 1956.

13. Laragh, J. H. and Stoerk, H. C.: A study of the mechanism of secretion of the sodium retaining hormone (aldosterone). J. Clin. Invest., 36: 383, 1957.

14. Llaurado, J. G. and Woodruff, M. F. A.: Postoperative transient aldosteronism. Surgery, 42: 313, 1957.

15. Zimmerman, B. and Moran, W. H.: Aldosterone. Am. J. Surg., 99: 503, 1960.

16. Bush, I. E. and Sandberg, A. A.: Adrenocortical hormones in human plasma. J. Biol. Chem., 205: 783, 1953.

17. Traina, V., Burstein, C. L., Ciliberti, B. J., and Rovenstein, E. A.: Pituitary-adrenal response to surgical trauma and anesthesia; eosinopenic response. Anesthesiology, 14: 449, 1953.

18. Virtue, R. N., Helmreich, M. L., and Gainza, E.: The adrenal cortical response to surgery; effect of anesthesia on plasma 17-hydroxycorticosteroid levels. Surgery, 41: 549, 1957.

19. Hammond, W. G., Van Dam, L. D., Davis, J. M., Carter, R. D., Ball, M. R., and Moore, F. D.: Studies in surgical endocrinology; anesthetic agents as stimuli to change in corticosteroids and metabolism. Ann. Surg., 148: 199, 1958.

20. Han, Y. H. and Brown, E. S.: Pituitary blockade by meperidine in man. Anesthesiology, 22: 909, 1961.

21. Hume, D. M.: The secretion of epinephrine, norepinephrine and corticosteroids in adrenal venous blood of the dog following single and repeated trauma. Surg. Forum, 8: 111, 1957.

22. Khalil, H. H.: Effect of hypothermia on hypothalamic-pituitary response to stress. Brit. Med. J., 2: 733, 1954.

23. Peterson, R. E.: The miscible pool and turnover rate of adrenocortical steroids in man. Recent progress in hormone research, 15: 231, 1959.

24. Salassa, R. M., Bennett, W. A., Keating, F. R., Jr., and Sprague, R. G.: Postoperative adrenal cortical insufficiency-occurrence in patients previously treated with cortisone. J.A.M.A., 152: 1509, 1953.

25. Slaney, G. and Brooke, B. N.: Postoperative collapse due to adrenal insufficiency following cortisone therapy. Lancet, 1: 1167, 1957.

26. Bergenstal, D. M. and Dao, T. L.: Management of Addison's disease in adrenalectomized patients. Bul. N. Y. Acad. Med., 29: 295, 1953.

27. Moore, G. E., Kondo, T., and Oliver, R. J.: Effects of cortisone in tumor transplantation. J. Nat. Cancer Inst., 25: 1097, 1960.

28. Iversen, H. G. and Hjort, G. H.: The influence of corticoid steroids on the frequency of spleen metastases in patients with breast cancer. Acta Path. et Microbiol. Scandinav., 44: 205, 1958.

29. Pomeroy, T. C.: Studies on the mechanism of cortisone-induced metastases of transplantable mouse tumors. Cancer Research, 14: 201, 1954.

30. Dhuner, K. G. and Nordquist, P.: Sleep induced by cortisone and glucose in patients intoxicated with barbiturates and related drugs. Acta Anesth. Scandinav., 1: 55, 1957.

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Plan Now To Save The Dates

Halothane (Fluothane) In Anesthesia

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The history of the halogenated hydrocarbons goes back to the days of the tempestuous and controversial James Y. Simpson. In 1847, shortly after the birth of man's triumph over pain, he became the unremitting champion of chloroform as an anesthetic drug. Probably Simpson's career would not have been so colorful had he not combined the characteristics of a Scotsman with a vigorous and assiduous defense of chloroform. The flames of argument for and against chloroform persisted unabated until about the turn of the century, when it was demonstrated specifically for the first time[1] that the development of acute yellow atrophy of the liver could be related to chloroform administration. From this time onward the proponents of chloroform have been in retreat. Recently, with the development of precise methods of vaporization, there have been some well-intentioned attempts to resurrect this drug, but it will probably remain relegated to the limbo of the past, due to the possibility of sudden cardiovascular collapse on induction,[2] and due to its undeniable hepatotoxicity.[3]

Other halogenated compounds have made their impression during the growth of the art and science of anesthesia. When Embrey[4] introduced ethyl chloride in 1906, it was hailed as a drug *par excellence* for the rapid and smooth induction of anesthesia. However, for several reasons it is today well on its way to being a forgotten anesthetic. Its marked cardiovascular depressant actions, which may precede its depressant effect on respiration, and its propensity to induce severe arrhythmias have prompted the statement: Any drug behaving in this manner is unsafe for clinical use.[5] Moreover, clinical anesthesiologists realize that vinyl ether may be employed safely as an adequate substitute for ethyl chloride.

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Tribromethanol, Avertin, introduced clinically in 1926, has a few remaining proponents, but apart from teaching institutions in this country where operations go on, and on, and on, its usefulness has limitations because of its relatively slow onset of action, its length of action, its primarily hypnotic properties, and its difficulty in preparation. It has been safely replaced by thiopental.

Trichloroethylene had a vigorous, isolated recommendation by Jackson in 1934,[6] but it remained for Langton Hewer in 1941[7] to boost the advantages of this drug. In the midst of a world catastrophe, a nonflammable, nonexplosive, easily portable, potent anesthetic was needed. Trichloroethylene possessed these properties. A number of anesthesiologists jumped on the pharmacologic bandwagon for trichloroethylene, but it was doomed to a limited role in anesthesia, particularly in this country, because of its incompatibility with soda-lime. If it had possessed the properties of good muscular relaxation and lack of irritating action on the myocardium, which it did not, it might have surmounted the soda-lime obstacle. Stout advocates of trichloroethylene still remain, primarily because of its potent analgesic action, but the ranks of the faithful are diminishing in number.

This brief review brings us up to date. There was a moderately long hiatus in halogenated anesthetic compounds, broken only by the flurry of Fluoromar, until halothane (Fluothane) was synthesized and introduced in 1956.[8] In the short space of five years, this drug has caught the fancy of a majority of anesthesiologists, and is permitting more and more patients to survive an increasing complexity of surgical procedures, without, incidentally, a high incidence of nausea and vomiting.

An interesting paradox has arisen with regard to halothane. Here is a drug which pharmacologically is far from ideal:[9]

(1) It is a potent anesthetic, which implies a relatively narrow margin of safety, and therefore

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requires carefulness in administration with specially adapted vaporizers.

(2) It is a significant respiratory depressant.

(3) It is a potent cardiovascular depressant.

(4) It is not powerfully analgesic in its action, at least not during the first 30 to 40 minutes of administration.

(5) It does not produce profound muscular relaxation.

(6) Like many other halogenated compounds, it "sensitizes" the myocardium in the presence of hypercarbia and when used in combination with vasopressor drugs which have a positive chronotropic action upon the heart.

And yet, in spite of these several deterrents, halothane has prospered and played havoc with the pharmacologic idealists. The reasons for this apparent paradox no doubt are manifold and complex, but some of them will be noted briefly.

From the viewpoint of human behavior, it is worthwhile to recall from Toynbee's "Study of History"[10] the challenge-response pattern which characterizes a growing, creative society. A period of non-productivity is followed by a burst of energy created about a novel idea (*élan vital*), and if the idea has value, a mimesis pattern follows in which converts rapidly assimilate the novel pattern. As an analogy, it is recognized that pharmacologically the inhalation anesthetic sphere has been relatively barren since 1935: then a new drug, incorporating a novel atom, fluorine, in its molecule, suddenly is synthesized, is stated to have merit, and is evaluated by many who apparently believe that merit there is. One must conclude either that the points of merit outweight the pharmacologic deterrents, or that the mimesis pattern has blinded the normal intelligence of the proponents of this drug.

In a more prosaic vein, the advantageous factors which have persuaded the users of halothane to flaunt the pharmacologic idealists may be outlined as follows:

(1) Halothane is nonflammable and nonexplosive, and certainly a potent drug with these properties is a distinct asset in anesthetic practice today. To a certain extent our surgical colleagues, with their increasing flair for the cautery, and with their greater need for X-rays in the operating theater, have sharpened this requirement: but the more frequent dependability of the anesthesiologist on various types of monitoring apparatus in the operating room also has played a vital role.

(2) A smooth, rapid induction and a smooth, rapid eduction are taught to be desirable attributes in the modern practice of anesthesia. The early obtundation of pharyngeal and laryngeal reflexes, the lack of irritancy to the respiratory tract, and the rapid recovery from anesthesia seen with halothane permit the user to fulfill these attributes. Moreover, it is easy, clinically, to increase or decrease the plane of anesthesia during operation by ventilation of the lungs several times.

(3) From the viewpoint of the patient, the degree of success of an anesthetic is judged, not on how smoothly endotracheal intubation is performed, not on how ideal the muscular relaxation is for the surgeon, not on how adequately the vital signs are maintained during operation, but on how extensive nausea and vomiting are in the postoperative period. Following halothane administration these phenomena are seen infrequently, and when present do not persist.

(4) In common with thiopental and nitrous oxide, halothane has been shown not to stimulate the endogenous secretion of epinephrine and norepinephrine during administration.[11] This absence of stimulation may explain in part the potential cardiovascular depression which goes hand in hand with increasing depth of anesthesia. It may also signify that the patient under halothane anesthesia is exposed to less stress as a result of anesthesia administration. Moreover, it may indicate that cardiac arrhythmias are less prone to occur with halothane than with drugs such as cyclopropane which do stimulate adrenal medullary secretions.

Those anesthesiologists who are enthusiastic concerning halothane administration have been able to rationalize some of the pharmacologic drawbacks of the drug. They say that potency is a challenge which can be met with equilibrium by the careful practitioner. If the pharmacology of the drug is well understood, and if accurate vaporizing devices are employed, safety can be assured for the patient.

These advocates would note that nearly all types of inhalation anesthesia promote a respiratory acidosis unless spontaneous respirations are assisted adequately or controlled entirely, and that therefore the respiratory depressant properties of halothane are not a deterrent to its use. In fact, by allowing easy supremacy over the spontaneous respirations of the patient, it provides a quiet operative field for the surgeon, particularly in upper abdominal and thoracic surgery.

Furthermore, they would insist that with careful administration cardiovascular depression with halothane, as reflected in reductions of arterial blood pressure, is an infrequent occurrence, and perhaps no more common than with other inhalation drugs. Moyers and Pittinger[12] found that the degree of hypotension was no greater in incidence than with ethyl ether, cyclopropane or nitrous oxide.

In a recent analysis of 6,000 patients of all age groups, (Table I) at Duke Hospital who were administered halothane for a wide variety of procedures, (Table II), the majority for periods longer than two hours (Table III), it was found that 25

TABLE I
AGE GROUPS

YEARS	PATIENTS
3 months to 9 years	1541
10-19	942
20-29	670
30-39	759
40-49	894
50-59	783
60 and over	525
Total	6114

per cent had reductions of systolic pressure greater than 20 mm. Hg at some time during the anesthetic. (Table IV). Only 7.0 per cent of patients had reductions greater than 40 mm. Hg, while 8.3 per cent showed hypotension between 30 and 40 mm. Hg at some time during anesthesia. Hypotension occurred most frequently during induction of anesthesia, and usually could be corrected by reducing the concentration of halothane vapor. The most abrupt reductions in pressure occurred in hypertensive patients. However, hypertension *per se* did not prove to be a contraindication to halothane administration, as far as could be judged by the progress of the patients during and after anesthesia. In this series no deaths occurred during operation, and the postoperative mortalities were not related to the course of anesthesia.

TABLE II

SITE OF OPERATION	PATIENTS
Head and Neck	1757
Extremities	1753
Intrathoracic	760
Intra-abdominal	694
Trunk	582
Perineal	550
Cardiac	18
Total	6114

The boosters of halothane would note finally that Griffith's introduction of specific muscle relaxant drugs in 1942 abolished the necessity for inhalation anesthetic drugs which possess the power to relax muscles; moreover, they would state that inhalation drugs should not be employed in their more precarious higher concentrations for this purpose.

TABLE III
ANESTHESIA TIME

HOURS	PATIENTS
Less than 1	882
Less than 2	1756
Less than 3	1566
More than 3	1910
Total	6114

TABLE IV
INCIDENCE OF HYPOTENSION

MM. HG	PATIENTS	PER CENT
20-30	604	9.9
30-40	511	8.3
40 Plus	420	7.0
Total	1535	25.2

In spite of the enumerated merits and rationalizations concerning halothane, it is obvious that the drug falls short of the ideal, particularly as Artusio would describe it.[13] What will happen in the future? Will a more acceptable and safer inhalation anesthetic drug be synthesized? The answer depends upon how many men of creative urge contribute to our particular sphere of activity. The outlook is rosy, the fields are not barren.

REFERENCES

1. Guthrie, L. G.: On some fatal after-effects of chloroform on children. Lancet, 1: 193, 1894.
2. Fatal application of chloroform. Lancet, 1: 161, 1848, and reprinted in Surv. Anes., 3: 137, 1959.
3. Siebecker, K. L. and Orth, O. S.: A report of seven administrations of chloroform for open thoracic operations. Anesthesiology, 17: 792, November-December, 1956.
4. Embrey, E. H.: Pharmacology of ethyl chloride. Proc. Roy, Soc., 78: 381, 1906.
5. Bush, O. F., Bittenbender, G., and Adriani, J.: Electrocardiographic changes during ethyl chloride and vinyl ether anesthesia in the dog and man. Anesthesiology, 13: 197, March, 1952.
6. Jackson, D. E.: Study of analgesia and anesthesia with special reference to such substances as trichloroethylene and vinethylene. Anesth. and Analg., 13: 198, 1934.
7. Hewer, C. L. and Hudfield, C. F.: Trichloroethylene as inhalation anesthetic. Brit. M. J., 1: 924, 1941.
8. Raventos, J.: The action of fluothane—a new volatile anaesthetic. Brit. J. Pharmacol., 11:, 394, 1956.
9. Krantz, J. C., Park, C. S., Truitt, E. B., and Ling, A. S. C.: Anesthesia LVII: A further study of the anesthetic properties of 1, 1, 1, Trifluoro-2, 2-Bromochlorethane (Fluothane). Anesthesiology, 19: 38, January-February, 1958.
10. Toynbee, A. J., as abridged by Somervell, D. C.: A study of history. Oxford University Press, New York and London, 1951.
11. Price, H. L., Linde, H. W., Jones, R. E., Black, G. W., and Price, M. L.: Sympatho-adrenal responses to general anesthesia in man and their relation to hemodynamics. Anesthesiology, 20: 563, September-October, 1959.
12. Moyers, J. and Pittinger, C. B.: Changes in blood pressure and pulse rate during fluothane anesthesia: A comparative clinical study. Anesthesiology, 20: 605, 1959.
13. Artusio, J. F., Jr. and Van Poznak, A.: The concept of intermediate potency. Far East J. Anesth., 2: 27, May, 1958.

Diagnosis And Management Of Cardiac Failure In The Operating Room

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CARDIAC failure, regardless of etiology or time of occurrence, may be defined as a demand on the heart which exceeds its effective pumping capacity.[1]

Five factors known to produce failure of the heart are: (1) preexisting cardiac disease, (2) effects of anesthesia, (3) effects of surgery, (4) stress, and (5) position.

In patients free of heart disease three abnormalities may produce cardiac decompensation during anesthesia; (1) obstruction of blood flow into or from either ventricle, (2) a heart rate or rhythm which inhibits ventricular systole, (3) failure of the myocardium to provide sufficient energy (commonly caused by superimposed deep anesthesia, electrolyte imbalance, and/or preanesthetic drug intoxication). It should be clearly understood one or any combination of these three conditions enumerated above will precipitate failure in a cardiac patient more quickly than it will in one free of heart disease.

Sudden position changes in both the anesthetized and the non-anesthetized patient produce marked physiologic alteration. Hypotension, decreased cardiac output, and peripheral pooling of blood have long been recognized in clinical anesthesia to occur during and immediately after positioning. Little has previously pointed out certain positions or positioning of the anesthetized patient may lead to a markedly reduced left ventricular output.[2] An ineffectual pumping of the heart as a result of the stress of positioning to the patient should be anticipated. Patients with arteriosclerosis, valvular heart disease, or coronary artery pathology, must be protected from sudden or exaggerated position changes during surgery.

It is highly recommended that during the preanesthetic survey by the anesthetist, the patient's systemic blood pressure be determined in the same position that will be used during anesthesia and surgery.[3] This is known as the basal positional blood pressure. It can be anticipated that with a decrease in the systolic blood pressure of 10-30 mm. of mercury in the basal position the administration of preanesthetic medication and induction of anesthesia may produce a sequence of hypotension, decrease in cardiac output and pooling of blood. In contrast, patients with little change in blood pressure when placed in the basal position will exhibit less deleterious effects on the cardiovascular system as a general rule.

Placing a patient who has preanesthetic dyspnea and/or orthopnea in the supine position markedly alters his pulmonary capacity. Sharp has measured these changes and concludes that a decrease in total lung capacity, maximum breathing capacity, and lung compliance occur early in nearly each instance.[4] Thus, three general rules are recommended to the anesthesiologist in planning a proper anesthetic management of the orthopneic, and/or dyspneic patient in the supine position: (1) the patient should be brought to the operating suite in a head-up (Fowler) position, (2) induction should be achieved in the most comfortable position to the patient, (3) if general anesthesia is selected as the technique of choice, the ability of the patient to ventilate will be decreased and should be augmented by the anesthetist.

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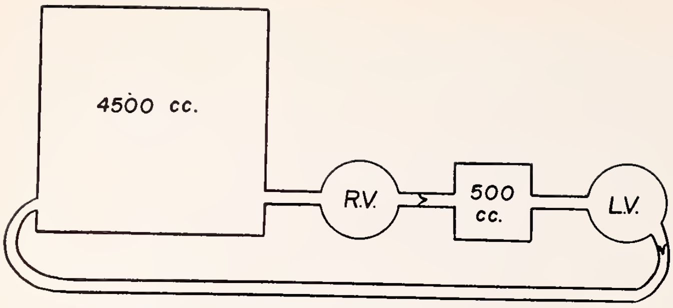

Relative contents of central and peripheral vascular beds.

FIGURE I

The Recognition Of Failure In The Anesthetized Patient

While the exact mechanisms producing the signs and symptoms are not clearly understood, the manifestation of heart failure is largely that of the redistribution of vascular and extra-vascular fluids.[5] If five liters is considered to be the normal blood volume for a healthy middle-aged adult, inspection of Figure I will show that the capacity of the peripheral vascular reservoir is 4500 ml and that this is nine times larger than the pulmonary vascular reservoir of 500 ml. If a redistribution in the circulating blood volume occurs there will be an alteration of the normal nine to one ratio between these reservoirs. A shift of only ten per cent of the peripheral blood volume into the pulmonary system would double the pulmonary vascular content. The pulmonary vascular bed has a limited adaptability and capacity. It cannot accommodate to an increase in blood volume without untoward physiologic effect. This is basically the result of a lack of capillary tone in the pulmonary vascular system.[6] In contrast, the peripheral vascular system is designed to adapt to altering blood volume through changes in venous tone.

Although the cause and effect cannot categorically be stated the appearance during anesthesia of (1) increased venous pressure, (2) loss of lung compliance, (3) alteration of ventricular systole, and (4) bronchorrhea should make it apparent to the anesthesiologist that all is not well with the heart's pumping action. Differential diagnosis can usually be made quickly by the anesthesiologist and he should presume failure of the heart to be present if the four premonitory signs are present, and there is no evidence of respiratory obstruction, deep anesthesia, and/or hypovolemia.

The presenting signs of failure commonly follow a predictable sequence. First, there is a decrease of the pulse pressure with an early elevation of diastolic pressure. A decrease of the systolic pressure occurs soon thereafter with further narrowing of the pulse pressure. Second, bronchorrhea, colorless at first, occurs as a result of the increase in blood volume in the pulmonary capillary circuit. The secretions become frothy in a matter of one to fifteen minutes, changing in color to pink and finally to deep red as the pulmonary capillary pressures increase. Third, cyanosis of the periphery soon follows. Central cyanosis, denoting further suboxygenation of the tissues may then ensue. Fourth, marked venous distention with an unusually prominent jugular pulse wave appears as right ventricular output is decreased. Further evidence of the increased venous pressure may be observed in a slowing of the flow rate of a previously adjusted intravenous infusion. Fifth, a marked increase in pulmonary resistance (loss of lung compliance) manifest by a decrease in tidal volume, hyperpnea and labored breathing becomes apparent. Increased pressures during inspiration on the breathing reservoir are required by the anesthesiologist.

Auscultation of the lung fields during heart failure characteristically reveal a decrease in aeration. Harsh breath sounds are heard throughout the entire lung field, with fine rales usually detected in the bases posterially.

Auscultation of the heart may elicit findings helpful in substantiating the diagnosis of failure. The detection of gallop rhythm or of "tic tac" heart sounds inform the physician of the failing status of the heart.

Equally informative data may be secured by the palpation of any peripheral artery. Pulsus alternans whether detected by palpation or during manometric determination, is pathognomonic of heart failure, and prompt therapy is indicated. Pulsus alternans must be differentiated from coupling (bigeminy) due to premature ventricular systoles. The detection of bigeminy is in itself significant, for in most instances it must be considered a sentinel cardiac irregularity indicating oxygen deprivation to the myocardium and is a precursor of the more grave cardiac arrhythmias such as ventricular tachycardia and/or ventricular fibrillation.[7]

The electrocardiogram is helpful in monitoring the anesthetized patient. However, the electrocardiogram is incapable of indicating the presence or absence of heart failure. The electrocardiogram is constructed to give indication of but one thing, the measurement of the electrophysiologic phenomena of the heart. The electrocardiogram can and does give indication of cardiac irregularities that are concomitant with or may result in failure, such as defects of the conduction systems.

During episodes of extreme failure in the anesthetized patient cardiac asystole, the end result of failure, may occur. The cessation of heart action is invariably preceded by either hypotension or detectable cardiac irregularities. In the properly observed patient, there is little reason for death to be unanticipated. The typical premonitory signs and symptoms will invariably warn the anesthetist in sufficient time for proper therapy to be instituted.

Treatment

The responsible surgeon should be notified immediately of the status of the patient, and consultation with an internist in the operating room should be secured.

Ideally treatment should be directed at the correction of the known physiologic precursors of heart failure. With an understanding of the disorders present, specific measures should be instituted to prevent an impending fatality. The primary disorder is the inadequate pumping action of the heart. The secondary disorders, such as pulmonary edema and cyanosis, may, however, demand the first attention of the anesthesiologist. The management of pulmonary edema in the anesthetized patient is directed toward two main approaches. First, control of the pulmonary edema *per se,* and secondly, improvement of the pumping action of the heart.

Pulmonary edema in the anesthetized patient is best managed by the administration of oxygen by positive pressure breathing. The inspiratory pressure on the breathing reservoir should be between 15 and 30 mm. of mercury and it is essential that positive pressure be maintained during the expiratory phase of ventilation. This maneuver will produce a reduction of blood volume returning to the right atrium, thus reducing flow of blood from the right ventricle into the overloaded pulmonary circulation. At the same time, the increased intra-alveolar pressure will decrease the blood flow into the left atrium, thus reducing the demand on the left ventricle. In addition to correcting the distribution ratio of pulmonary blood volume to systemic blood volume, better oxygenation of the pulmonary capillary blood ensues. In the event that positive pressure ventilation for a period of five to ten minutes does not control the pulmonary edema, the patient should then be placed in a head-up position. In certain instances one may have to resort to actual phlebotomy to markedly reduce the total circulating blood volume.

If a cardiologist is not readily available, a rapid acting digitalis-like drug should be considered for immediate intravenous administration. Brehm[8] has revived interest in the use of the drug Ouabain. However, in most hospitals Ouabain is not a commonly used drug and may be neither immediately available nor the physicians familiar with its actions. In the event that Ouabain is the rapid acting drug selected, the initial intravenous dose should be between 0.25 mg. and 0.5 mg. The full digitalizing dose of Ouabain is generally considered to be 1 mg. Anesthesiologists and cardiologists are more familiar with the drug Lanatoside C. If a cardiologist is unavailable and the patient is in failure, 0.8 mg. of Lanatoside C should be administered intravenously. If there is no change in the effective pumping action of the heart after twenty minutes 0.4 mg. of Lanatoside C should be administered intravenously as the second dose. The average full digitalizing dose of Lanatoside C is considered to be 1.6 mg. Following the administration of the original dose of Lanatoside C it is well to monitor the patient with electrocardiography. This will give indication as to the time of response of the digitalizing drug as well as cognizance of cardiac irregularities concomittant with overdosage of the digitalizing drug.

Our experience has led us to suspect the two extremes of ages as those most apt to develop cardiac failure in the operating room. Of the two extremes of ages, failure has most often developed in the elderly patient with known heart disease undergoing major abdominal or urologic surgery. We have been particularly impressed in our clinical practice and in the statistical evaluation from our anesthesia records as to the low incidence of failure in this same group of patients anesthetized by regional techniques. Heart failure may appear during spinal anesthesia in the urologic patient. However, in each instance it has followed prolonged transurethral resection, resulting in hypervolemia due to the infusion of the irrigating solution through the prostatic venous plexus.

Morphine sulphate and all other narcotics are contraindicated in the treatment of heart failure in the operating room. Narcotics are basically used to control pain and allay apprehension. In the anesthetized patient neither apprehension nor pain is present. Thus, the depressant effect on both the respiratory center and the heart can be avoided if narcotics are not administered.

Conclusion

Evidence of heart failure in the operating room can and should be detected by the anesthesiologist while still in the earliest forms.

The anesthesiologist should direct his prime attention to the known physiologic rather than pharmacologic restoration of the effective pumping action of the heart.

Our evidence indicates the value of regional anesthesia for patients known to have heart disease.

REFERENCES

1. Keown, K. K. and Ray, C. T.: Diagnosis and treatment of heart failure in the operating room. Anesthesia and Analgesia, 40: 87, (Jan.-Feb.) 1961.

2. Little, D. M.: Posture and anaesthesia. Canadian Anaesthetist Society Journal, 7: 2, (Jan.) 1960.

3. Keown, K. K.: Anesthesia for surgery of the heart. Springfield, Illinois, Charles C. Thomas, Publisher, 1956.

4. Sharp, J. T.: The effect of body position change on lung compliance in normal subjects and in patients with congestive heart failure. Journal Clinical Investigation, 38: 659, (April) 1959.

5. Burch, G. E. and Ray, C. T.: A consideration of the mechanism of congestive heart failure. American Heart Journal, 48: 918, (June) 1951.

6. Warren, J. V. and Stead, E. A.: Fluid dynamics in chronic heart failure. A.M.A. Archives Internal Medicine, 73: 138, 1944.

7. Hitchcock, P. and Keown, K. K.: The management of arrhythmias during cardiac surgery. Southern Medical Journal, 52: 702, (June) 1959.

8. Brehm, W. F., Erickson, J. C., and Talmage, E. A.: Treatment of hypotension with ouabain during anesthesia. Pennsylvania Medical Journal, 63: 1485, (October) 1960.

A proposition . . . is something concerning which questions of truth and falsity are significant. Consequently when Hamlet declares "Oh from this time forth my thoughts be bloody or be nothing worth!" or when he asks "Why wouldst thou be a breed of sinners?" he is not asserting propositions except implicitly. For wishes, questions, or commands cannot as such be true or false. It should be noted, however, that the intelligibility of wishes, questions and commands rests upon assumptions that certain states of affairs prevail. And such assumptions involve propositions. For consider the question "Why wouldst thou be a breeder of sinners?" It obviously assumes among other propositions that the person addressed exists, is capable of breeding children and that such children are bound to be sinners. Similarly the exhortation "My thoughts be bloody or be nothing worth!" assumes that the speaker is capable of having ideas, that these ideas can be murderous and that they may have some kind of value and so forth. Moreover, a command or wish may be put in the form of a declaration which generally expressed a proposition, for example, I wish you would come; I shall be pleased if you came; You will be sorry if you do not come. To the extent that the declarations state something that may be true or false, they are propositions. M. R. Cohen and E. Nagel, *Introduction to Logic And The Scientific Method.*

Resuscitation Of The Newborn

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The most common causes of neonatal mortality are prematurity and failure to establish adequate respiration at birth. To achieve effective pulmonary ventilation promptly and reduce the mortality rate in the first 24 hours of life, it is essential to have a knowledge of fetal and newborn physiology, and a thorough familiarity with measures for prevention and therapy of respiratory depression.

Physiology Of The Fetus

During fetal life, the placenta acts as the organ of respiration and excretion. Oxygenated blood flows through the umbilical vein. As it enters the infant, its oxygen is reduced by venous blood from the abdominal viscera and the lower extremities. The flow of blood is divided as it leaves the inferior vena cava. The portion reaching the right atrium is further desaturated by venous blood from the superior vena cava. It then passes through the right ventricle to the lungs and the ductus arteriosus. The remainder of the flow from the inferior vena cava passes through the foramen ovale to the left atrium where it mixes with venous blood from the pulmonary veins. This blood then flows to the left ventricle and the aorta.[1]

The intrauterine environment of the fetus has been classically described as hypoxic.[2] However, recent evidence based on work with the Rhesus monkey fetus indicates that the oxygen saturation of fetal arterial blood may be as high as seventy-nine per cent.[3] In addition, Misrahy and his co-workers[4] placed oxygen tension electrodes into the brain of the pregnant guinea pig and her fetus in-utero and found that the levels of oxygen were equal.

During the process of normal delivery, the transfer of oxygen from mother to baby is reduced.[5] Factors contributing to this include reduction in uterine blood flow and compression of the umbilical cord. Occasionally maternal hypotension or premature separation of the placenta may be implicated. As the oxygen level falls, the carbon dioxide tension rises and the pH falls. Some degree of biochemical asphyxia, usually of brief duration, occurs as a result of the delivery process, and is a normal finding in all newborn infants.[5] Recovery from this biochemical asphyxia is one of the initial readjustments the baby must make after delivery, and it has been proposed that this recovery plays a central role in the infant's later adaptation to extra-uterine life.[6] Several factors appear to influence the clinical condition of the infant and his pattern of recovery. These include the degree of initial biochemical asphyxia, the dose of analgesic and anesthetic drugs, and other factors, difficult to quantitate, related to physical trauma, maternal disease and prematurity[5] (Figure I).

Onset And Control Of Breathing In The Newborn

The independent existence of a newborn infant demands the almost immediate onset of respiration following delivery. The lungs must rapidly change from a fluid-filled to an air-filled system and take

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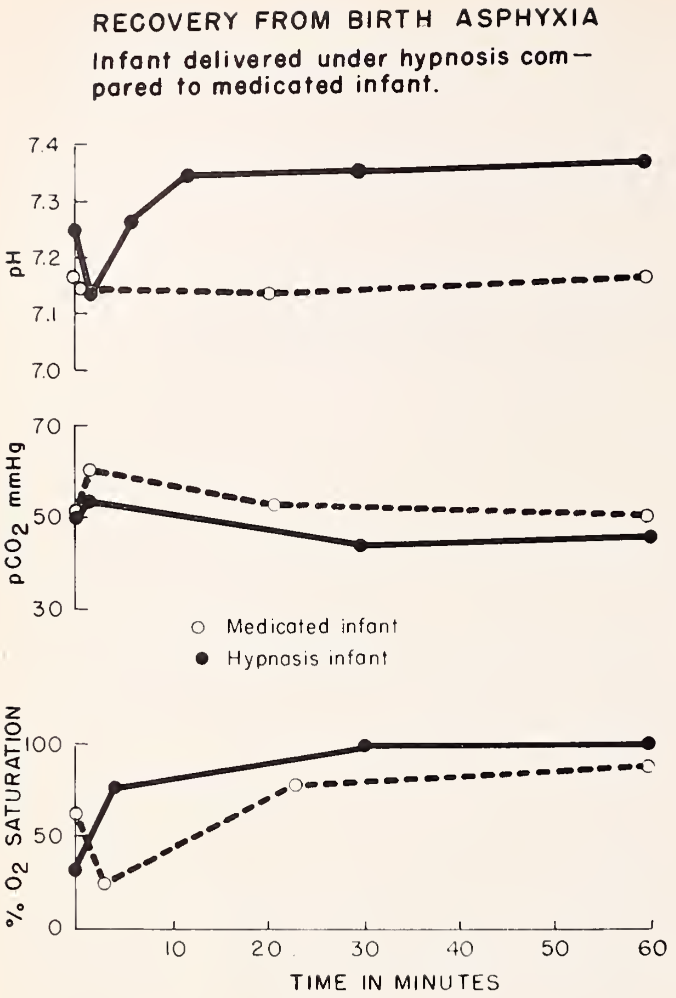

Figure I

The effect of medication on the pattern of recovery from the biochemical asphyxia of birth.

over from the placenta the task of exchange of respiratory gases. Early in gestation, the respiratory center matures sufficiently so that rhythmic respiratory movements are possible. However, in the full term fetus respiratory movements occur only abnormally, in response to strong stimuli such as asphyxia.[2] It is extremely unlikely that immaturity of the respiratory center is ever primarily responsible for failure to initiate breathing; gasping respiratory efforts have been observed in 300-400 gram fetuses for hours following spontaneous abortion. On the other hand, the maturity of the lungs is of great importance in determining survival. It has been estimated that at 27 to 28 weeks gestation, the lungs are sufficiently vascularized to allow adequate gas exchange.[7]

The onset of respiration requires a stimulus to the respiratory center, a normal lung structure and thoracic cage. The airways must be unobstructed and the elasticity of the lungs and the surface tension in the respiratory tract must be overcome. The blood circulation must change from the fetal to the transitional form of the neonatal period. Only then can a normal diffusion with an adequate gas exchange take place.

The nature of the stimuli which initiates extrauterine respiratory movements is not fully established. It is believed that the moderate biochemical asphyxia normally present in virtually all births, stimulates carotid and aortic body chemoreceptors which, in turn, stimulate the respiratory centers in the medulla.[5] However, profound anoxia probably never stimulates breathing and high levels of CO_2 can augment the depression of a severely anoxic, traumatized or drugged respiratory center. In addition, Barcroft[1] has suggested that the flood of sensory impulses (tactile, thermal and proprioceptive) coming from the skin, muscles and joints may also have a role in the onset of respiration.

The mechanisms for control of respiration in infants and adults are basically similar in organization. The normal baby, however, more frequently shows periodic respiration. The response of the medullary control centers of the infant to environmental changes involving pCO_2, pH, pO_2 and drugs resemble those of the adult.[8] Profound depression and apnea may result from the combined effects of drugs, low pO_2, and high pCO_2.

Mechanics Of Breathing

Taking into consideration their small size, the lungs of full term normal infants resemble those of mature organisms in their mechanical characteristics and are no more "delicate" than adult lungs.[9] Approximately the same intrapulmonic pressures are required to produce a normal tidal volume and the hazardous ranges of pressure are of the same magnitude. However, the lungs of infants in need of resuscitation may be far from normal because of prematurity, incomplete expansion or aspiration during delivery. In such cases, if the lungs can be ventilated at all, a normal tidal volume can sometimes be achieved only by application of high pressures which are potentially dangerous.

For the initial expansion of a normal infant's lungs, the two most important resistances that must be overcome are surface tension within the air passages and the elastic resistance of the lungs. Other factors, such as the elasticity of the thoracic cage and diaphragm, the resistance to the flow of gas within the airways, the viscous (non-elastic) resistance of the lung tissue and the inertia of the lungs and thoracic cage, all contribute an unknown but probably less important fraction of the total resistance to initial expansion.[10] The resistance of the lungs to expansion decreases rapidly after birth so that there is a progressive and rapid fall in the effort required by the baby to maintain respiration.[11]

Wilson and Farber[12] in 1933 were the first to show that air pressures greater than 25 cm. H_2O were necessary to expand the lungs of newborn infants. However, these pressures when applied for an indefinite period of time invariably ruptured the lungs. Postmortem autolysis and trauma during handling could also have contributed to this rupture. This experience led to the practice and development of mechanical devices which used maximum inflating pressures well below the range required to inflate the unexpanded lung of the newborn. Twenty years later, Day and his co-workers[13] demonstrated that pressures exceeding 25 cm. H_2O could be used safely provided they were applied for a brief period of time. The higher the pressure, the shorter the interval necessary. Karlberg[14] has recently shown that the infant himself can generate pressures as high as 80 cm. H_2O and tidal volumes exceeding 80 cc. during his first few breaths.

Changes In Circulation With Expansion Of Lungs

With the expansion of the lungs there is a vast increase in the pulmonary capillary bed with an associated greater blood volume and lowering of the pulmonary arterial pressure.[1] With the additional pulmonary blood flow the quantity of blood entering the left atrium is increased. As a result, the pressure in the left atrium rises above that in the right atrium and tends to close the foramen ovale, though the closure does not become sealed until several weeks later. Finally, the ductus arteriosus constricts as the arterial blood becomes more highly oxygenated in the first few minutes of life. These circulatory changes are initiated whether expansion of the lungs occurs spontaneously or artificially with intratracheal pressure.

Physiological Consequences Of Apnea

The majority of infants will breathe spontaneously within a few seconds of delivery. If breathing does not occur promptly, the biochemical asphyxia of birth increases and may depress rather than stimulate the respiratory centers. This depressing effect may be augmented by the presence of analgesics, anesthetics and other sedative drugs which have been transmitted by the mother to her baby. Unless effective resuscitative procedures are quickly instituted, the central nervous system, as well as other vital organs, may be permanently damaged, even though the baby is kept alive.

If respiratory depression is sufficiently prolonged and severe, respiratory acidosis, later complicated by metabolic acidosis, ensues. Cardiac depression results from both hypoxia and hypercapnia, although stimulation of the sympathetic-adrenal system may initially mask the effect. As the left heart fails the left atrial pressure rises, and the systemic arterial pressure falls. At this point a single breath of air or oxygen may dramatically restore the failing myocardium. If air or oxygen is not supplied before the systolic pressure falls to approximately 50 mm. Hg the possibility of revival in animals is slight.[15]

Prevention

Consideration of the problem of infant resuscitation should begin not with the delivery, but from the moment the mother enters labor. Prompt establishment of a firm, friendly and understanding interpersonal relationship allays fears and anxieties and tends to produce a calm and confident patient. Under such favorable conditions the need for medication is reduced and the co-operation of the patient is increased. Since all babies are born biochemically asphyxiated and the severity is usually unpredictable, it is advantageous to choose some form of analgesia and anesthesia which will not augment this condition. All drugs used for relief of apprehension and pain during labor are capable of passing through the placenta and affecting the infant.[16] Dawes[17] has shown in sheep that the fetus is four to five times as susceptible to depressant drugs as the adult. In addition, it has been found in humans that the use of systemic anesthesia may significantly effect the clinical condition of the infant and his recovery from the asphyxia of birth. On the basis of this recent knowledge greater emphasis should be placed on techniques such as natural childbirth or medical hypnosis,[18] regional anesthesia,[19] e.g. pudendal, caudal or lumbar epidural or spinal block, and various types of inhalational analgesia[20] (not anesthesia) using low concentrations of nitrous oxide, chloroform, cyclopropane, trichlorethylene, ether or fluothane. In the latter technique, a potent anesthetic agent is used to secure pain relief and yet maintain the patient conversant, cooperative and well oriented. These methods of pain relief either reduce or eliminate the need for depressant drugs.

Throughout labor, the vital signs of mother and fetus should be closely observed. Recent electrocardiographic studies[21] of fetal heart rates indicate that persistent bradycardia following uterine contractions frequently heralds fetal distress. This is especially true when in association with the bradycardia there is passage of meconium-stained amniotic fluid. Steer and Fenton[22] found a 21 per cent perinatal mortality rate when both signs of distress were present. When intrauterine distress is recognized, administration of oxygen to the mother may help combat fetal hypoxia. This maneuver, however, should never replace more definitive management particularly the promptest possible delivery.

Procedure For Resuscitation

One of the most vital concepts in infant resuscitation is the urgency of the situation. Time is of the utmost importance. This is based on studies which have shown conclusively that if there is a delay in resuscitating and establishing ventilation in an apneic or hypoventilating infant, the asphyxia of birth will progress rapidly.[6] Within minutes the O_2 saturation decreases to zero, the Pco_2 rises as high as 115 mm. Hg and the pH may fall to a level of 6.7. This degree of asphyxia, if not treated quickly, may result in irreversible changes in vital organs. Because of the speed with which these changes in the acid-base balance take place, a rapid, effective resuscitation following a well organized and practiced routine is stressed.

The following sections present in brief the method of resuscitation that is practiced at the Sloane Hospital for Women. A comprehensive discussion of this procedure can be found in a chapter by Drs. Apgar, James and Holaday, in the recently published text "Resuscitation of the Newborn Infant."[23] An outline of the method is presented in Table I.

Establishment Of An Airway

As in the adult, the first consideration in resuscitation of the newborn is the establishment and maintenance of a clear airway. This should begin by keeping the head lower than the trunk from the moment of birth. As soon as the rest of the baby is delivered, he is held upside down by the feet since gravity is a more important aid in clearing his airway than any mechanical device, and in effectiveness, it is second only to the baby's own cough. The cord is clamped and cut and he is placed in the bassinet, in Trendelenburg position with a slight lateral tilt and the neck extended. Position is stressed because if the first inspiration of the newborn includes material from the pharynx, this aspiration may lead to pneumonia, atelectasis, pneumothorax and death in the first 24-48 hours.

Table I

Outline of Resuscitation of the Newborn Infant

I. Establish and Maintain an Airway.
  A. Position
    1. Keep head lower than trunk—from birth.
    2. Hold by feet, with mouth lowermost.
    3. In bassinet—head down, neck extended, lateral tilt.
  B. Suction Pharynx—briefly and gently.

II. Evaluate Condition of Infant—Apgar Score.

III. Mild Depression—Heart Rate Over 100.
  A. Stimulate feet—briefly.
  B. Oxygen—blown over face.

IV. Moderate Depression—Heart Rate Under 100.
  A. Immediate Artificial Ventilation—5 to 6 breaths.
    1. Mouth-to-mouth resuscitation
      or
    2. Mechanical device—16-20 cm. H_2O for 1-2 secs.
  B. Oropharyngeal Airway—after 2-3 breaths.

V. Severe Depression.
  A. Immediate Laryngoscopy.
    1. Suction pharynx—under direct vision.
    2. Suction trachea—if necessary.
  B. Intubate—5-6 Breaths (mouth-to-tube)—25-35 cm. H_2O.

Table II

Apgar Method[24] of Scoring Newborn Infants*

	SCORE†		
SIGN	0	1	2
Heart rate	Absent	Slow (<100)	>100
Respiratory effort	Absent	Weak cry, hypoventilation	Good; strong cry
Muscle tone	Limp	Some flexion of extremities	Well-flexed
Reflex irritability (response of skin stimulation to feet)	No response	Some motion	Cry
Color	Blue; pale	Body pink; extremities blue	Completely pink

* Evaluation 60 sec. after complete birth of infant (disregarding cord and placenta).

† Score of 10 indicates infant in best possible condition.

The pharynx is aspirated promptly in order to remove meconium, vernix and/or blood clots. This should be brief, gentle but effective. Prolonged suction is avoided because it may produce either laryngospasm or a profound bradycardia. The latter may be due to vagal reflex stimulation and loss of oxygen from prolonged suctioning or breath holding.

Evaluation Of Condition Of The Infant

At this point, the condition of the baby should be quickly evaluated, preferably using some system such as the Apgar Score[24] (Table II). This is a simple and convenient method of evaluating the baby clinically 60 seconds after birth. There are five criteria: Heart rate, respiratory effort, muscle tone, reflex irritability (usually tested by a glancing slap on the feet) and color. A score of zero, one or two is assigned according to the absence or presence and vigor of each sign. A score of 10 represents an infant in best possible condition, and a score of 0-2, an infant in very poor condition.

One minute after birth 70 per cent of infants are breathing well and crying vigorously, with Apgar scores of 8-10.[24] These need only routine post-partum measures given to all babies, including gastric aspiration. However, if the condition of the baby is unsatisfactory (score less than 8) then some form of resuscitation must be started immediately.

Once a clear airway has been established, the primary objective becomes the initiation of expansion, and maintenance of adequate ventilation of the lungs. This can be achieved through stimulation of spontaneous efforts by the baby, or, if necessary artificial ventilation. The precise method of producing this will depend upon the condition of the infant, especially the heart rate which should be continuously auscultated by an assistant who indicates the rate by finger movement.

Mildly Depressed Infants

Mildly to moderately depressed infants form the largest group requiring some form of resuscitation at birth. If the heart rate is over 100, but the infant is apneic or hypoventilating (Apgar score 5-7) there is usually a good breathing and crying response to a few gentle slaps across the feet. Of course stimulation of this sort should not be prolonged, nor used at all if the infant is severely depressed or in shock. Severe, traumatic types of stimulation such as anal dilatation may produce tears of the rectal mucosa and/or laryngospasm. Back slapping may rupture the fragile adrenals or other internal viscera.

If hypoventilation continues for 1-2 minutes, hypoxia can be prevented by blowing oxygen gently over the face and combining it with occasional stimulation of the feet.

Moderately Depressed Infants

The safest and most effective means of expanding and adequately ventilating the infant's lungs is through the baby's own efforts. Whenever possible, he should be encouraged to do so by brief stimulation of the feet. However, if the heart rate falls below 100 per minute immediate artificial ventilation must be administered for five to six inflations. Direct mouth-to-mouth resuscitation may be used; however, recent work by Elam and his co-workers[25] suggests that mouth-to-nose resuscitation with hyperextension of the neck may be more effective. If available, a mechanical respirator that will provide oxygen by mask under pressure of 16-20 cm. H_2O for an interval of one to two seconds may be extremely useful. Although this pressure is insufficient to expand the alveoli it forces oxygen down the trachea to the respiratory bronchioles where some oxygen is absorbed. Of greater importance is the stimulation of the sensitive stretch receptors found in this part of the pulmonary tree.[26] This stimulus, added to that of the chemoreceptors, initiates a gasp in the majority of cases. The heart rate improves due to changes in the systemic blood pressure and oxygen tension.

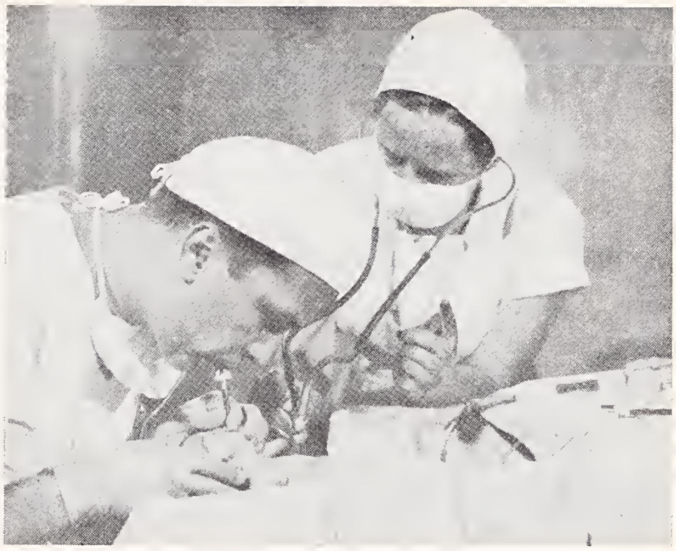

FIGURE II

Mouth-to-tube resuscitation while assistant monitors heart rate.

Whenever intermittent positive pressure breathing is required, the use of a small plastic airway is recommended in order to prevent obstruction from the tongue. In order to obviate the possibility of stimulation of inhibitory vagal reflexes from the pharynx, the airway should be placed only after an initial two to three inflations using a snug-fitting mask and hyperextension of the neck. If the infant has enough tone to keep his own tongue forward in the mouth or to push out the airway, then he probably does not need artificial ventilation.

Severely Depressed Infants

In most infants breathing commences after a few puffs of intermittent positive pressure and the heart rates improve rapidly. However, if the rate is less than 100 with no improvement after five to six inflations or if from birth the baby is severely depressed—i.e., limp with an Apgar score of 0-2, he needs immediate laryngoscopy and intubation, and removal under direct vision of any material from the pharyngeal and glottic area which may produce obstruction of the airway. If meconium or thick mucus has been aspirated into the trachea, it must be sucked out before the lungs are expanded. For this procedure, a wide bore plastic catheter or the endotracheal tube itself may be used for brief suction. This aspiration is followed by intubation and five to six short, sharp puffs of air through the tube, using the mouth as a source of pressure (Figure II). In this maneuver, only the volume of air in the operator's mouth should be expelled, with enough force to cause the infant's upper chest to rise gently. If the stomach rises, the

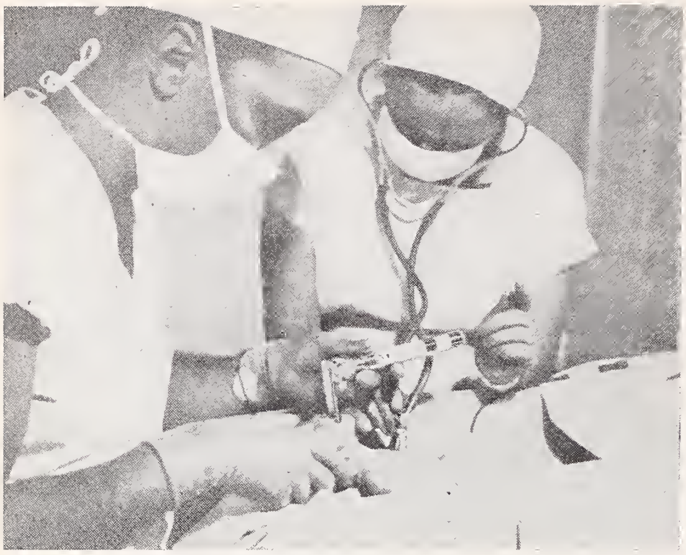

Figure III

Laryngoscopy with head in "sniffing position."

esophagus has been intubated instead of the trachea and the position of the tube must be corrected. The exhaled air used for resuscitation can be enriched greatly with oxygen by simply placing a tube carrying oxygen in or near the operator's mouth.

Intubation is the most efficient and direct method of achieving pulmonary ventilation. It is not a difficult procedure but skill should be obtained by practice on stillborn infants. A pencil handle laryngoscope with a premature blade and a Cole plastic endotracheal catheter (size No. 10, 12 or 14 French) have been found most useful. The flange on this tube allows a snug fit at the cords and prevents it from being inserted beyond the carina. In addition, placement of the baby's head in a "sniffing" position by means of a folded towel and a slight extension of the neck will also greatly facilitate this procedure (Figure III).

As mentioned above, to be effective in expanding the primary atelectatic lungs of the newborn, the pressures exerted must be at least 25 cm. of H_2O. (Figure IV). However, pressures exceeding this can be dangerous, unless the duration of application is kept to a short period of time. The briefest, lowest pressure which is effective should always be used, to avoid pneumothorax or pneumomediastinum. Thus the most effective and safe manner of expanding the lungs simulates the spontaneous initial breaths of the newborn, i.e., high pressures, for a short interval of time. With mouth-to-mouth or mouth-to-tube resuscitation this takes the form of short puffs of oxygen-enriched air at 25-35 cm. of H_2O pressure for up to one to two seconds. This will allow enough pressure and time to overcome resistances throughout the respiratory tree and thereby achieve initial alveolar expansion. At this range of inflating pressure there is a wide margin of safety with regard to the time factor. Experience in obtaining pressures in this range should be gained by puffing into an aneroid manometer. After initial expansion has been produced with three or four puffs, pressures of five to ten cm. H_2O for 0.5 second duration can be used to provide continued artificial ventilation. Tidal volumes in excess of 30 to 40 cc. are required to fill the lungs during the first few breaths; however, the lungs may be maintained expanded thereafter with volumes of 10 to 20 cc. delivered at a frequency ot 30 per minute.

Severely depressed infants frequently require three to eight minutes of artificial ventilation before a spontaneous gasp is taken. The endotracheal tube may be withdrawn after the infant has taken five or six breaths and the heart rate is over 100 beats per minute.

Cardiac Arrest

If cardiac arrest develops during resuscitation or if no beat is detectable at birth (after being audible all throughout labor), the infant must be quickly laryngoscoped, suctioned under direct vision, intubated and the lungs expanded immediately. Occasionally with oxygenation alone, cardiac ac-

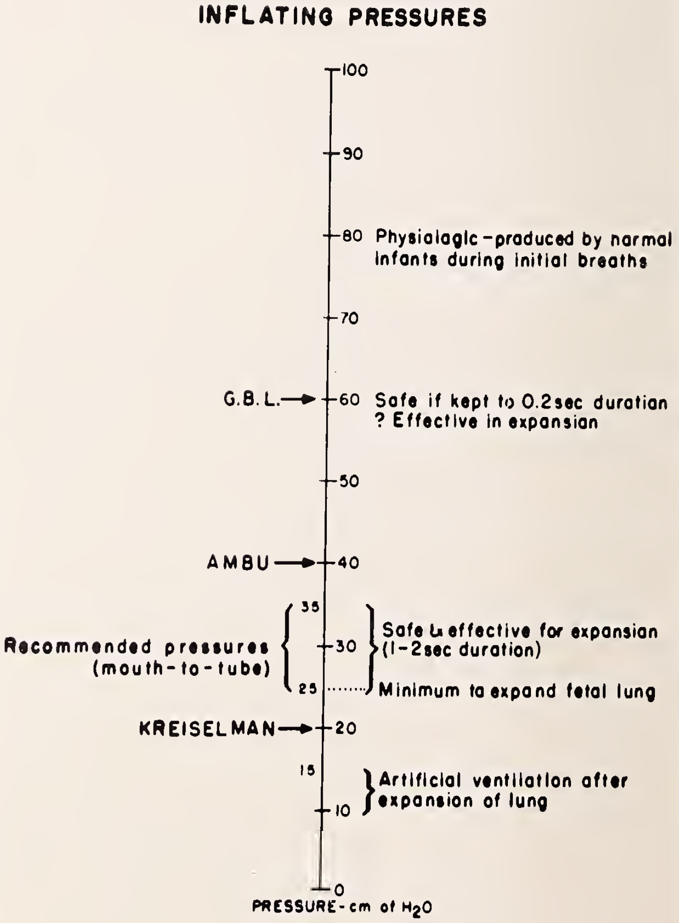

Figure IV

Intrapulmonic air pressures used or observed in the newborn.

tion will return. If this proves unsuccessful, we have been attempting closed chest cardiac massage with vigorous two-finger compression of the middle third of the sterum at a rate of 100-120 times per minute (Figure 5). This should be attempted only after the lungs have been expanded and it is certain that cardiac arrest is present. The use of the external cardiac defibrillator and pacemaker is rarely indicated in dealing with this condition in the newborn.

The method of closed chest cardiac resuscitation has been used at the Sloane Hospital for Women in four full-term newborn infants for periods ranging from six minutes to two and one-half hours.[27] It was found to be effective in producing adequate blood pressures of 70 mm. Hg systolic and improvement of the electrocardiographic patterns, without inadvertent trauma to the bony structures or internal viscera. The one permanent survivor, at eight months of age is healthy, developing normally and has no demonstrable neurologic sequelae. The other infants had been exposed either to severe asphyxia in utero or prolonged delays in instituting the cardiac massage. The prime advantages of this technique to the newborn are the ease with which it can be instituted and the avoidance of a thoracotomy. The initial results are encouraging and warrant further serious consideration and investigation.

Aids In Resuscitation

Methods Of Artificial Respiration

A number of methods have been devised for the introduction of air, oxygen or mixtures of the two into the lungs under pressure. The most effective technique in infants is the use of positive pressure applied to the upper airway.

1. Positive Pressure To Airway

A. The use of mouth-to-mouth or mouth-to-nose inflation of the lungs is simple, effective, readily available and does not require the use of complicated apparatus. It is easily learned and with little experience can be employed safely. The importance of the use of hyperextension of the neck in association with these techniques in order to establish a patent airway has been shown by Greene et al[28] with cinefluorographic studies of the neck. Mouth-to-tube resuscitation may be used as described above.

B. Low pressure devices. There are many mechanical devices available with built-in safety valves which prevent pressures above certain relatively low levels. Representative of this class is the machine introduced in 1940 by Kreiselman[29] in which mask pressures can be adjusted so as not to exceed an upper limit of 22 cm. H_2O. As mentioned previously such an apparatus probably acts more as a safe aid to stimulate spontaneous gasps in the apneic infant rather than as a direct cause of pulmonary ventilation. Newer models of this resuscitator have ranges of pressure up to 40 cm. H_2O.

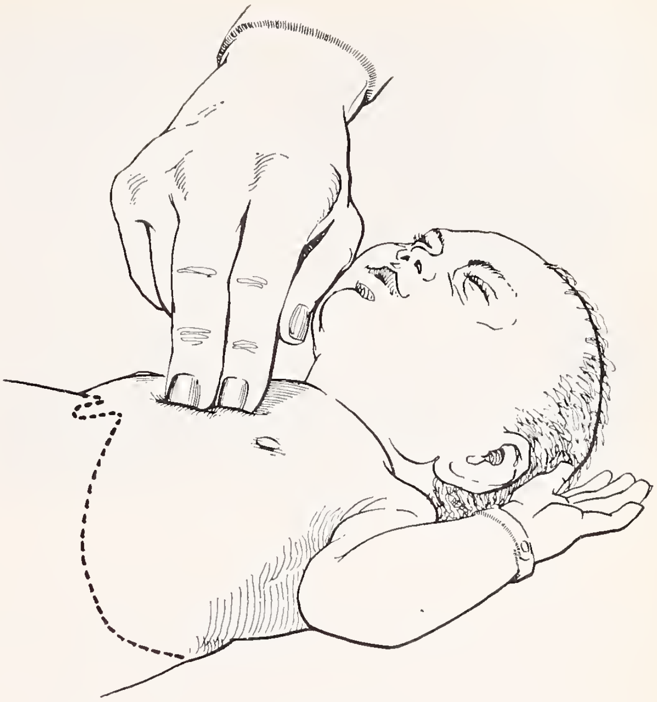

Figure V

Location of the fingers in closed chest cardiac massage of the newborn. Endotracheal tube is here omitted for simplicity.

Appliances of the positive-negative pressure type (e.g. Emerson resuscitator) have been used both for initiating respiration and continued short term ventilation.[30] Such resuscitators cycle between +18 and −12 cm. H_2O. Once the oxygen valve is set, the duration of each cycle is determined by the length of time it takes to build up a critical pressure within the mask-patient system. The use of alternating positive and negative pressure is of no proven value and may do harm. Burnard and James[31] have shown that asphyxia has deleterious effects on the myocardium which can lead to heart failure. The application of negative pressure in these infants may aggravate the tendency to pulmonary edema.

C. Higher pressure. An early adaptation of the Day principle of high pressure for a short interval of time is the G.B.L. infant hand resuscitator described by Goddard et al.[32] Pressures as high as 60 cm. H_2O may be achieved, but unfortunately there is no built-in timing device for safety. The recommended 0.2 second duration is determined by the rate and completeness of squeezing the rubber bulb and requires considerable practice with a model assembly. Furthermore, in a full-term infant this may not be sufficient time to allow these pressures to overcome resistance in the atelectatic lung, and for the flow of air to reach the alveoli.

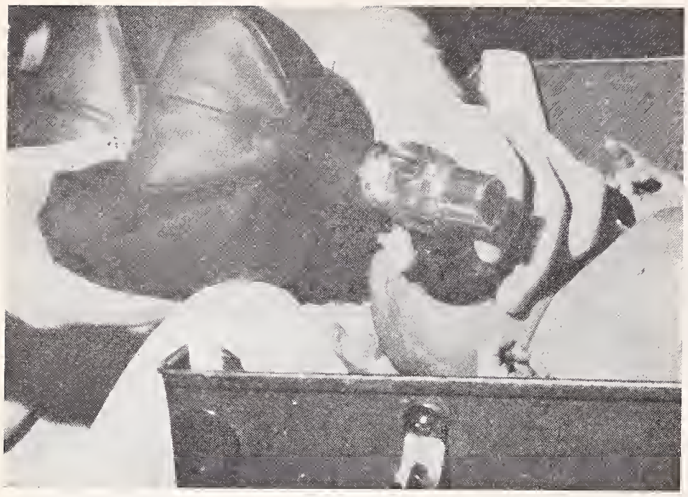

Figure VI
The Ambu Resuscitator in use.

A useful device which has been recently introduced into this country from Denmark is the Ambu resuscitator (Figure VI). This apparatus needs no source of compressed gases because it consists of a self-inflating foam rubber bag with a non-breathing valve on each end. The pressures of 25-35 cm. H_2O recommended for infant resuscitation are easily reached, and because of the physical properties of the rubber, the maximum pressure which can be produced by one hand is 40 cm. H_2O.[33]

2. Negative Pressure Surrounding Entire Body

Negative pressure devices include tank type respirators[34] as well as body shells for the development of negative pressure outside the thorax in the range of -15 to -30 cm. H_2O. These methods are technically difficult in the newborn and not suitable for use in the delivery room where speed and simplicity of operation are essential.

3. Rocking Resuscitation

This technique is not applicable to apneic infants with unexpanded lungs and even in the presence of an expanded lung its effectiveness is questionable.[35]

4. Electrophrenic Stimulation[36]

Stimulation of the phrenic nerve will produce effective inspiration; however, the method is technically difficult and not practical for use in the newborn.

Drugs

The use of drugs should not be considered until effective ventilation has been initiated. Drugs should be used solely as adjuvants of very limited value and their indiscriminate routine use is dangerous and irrational. As in any other state of asphyxia, reliance should be placed primarily on the mechanical supports of respiration.

If the mother is known to have received large doses of central nervous system repressants and the respiratory depression of the newborn is suspected to be the result of these agents, cautious antidotal therapy is in order. However, even under these circumstances only two types of drugs can be recommended as both safe and of some efficacy. The narcotic antagonists levallorphan (Lorfan) and nalorphine (Nalline) are indicated in the presence of an overdose with narcotics such as morphine or meperidine (Demerol). These antagonists are best given to the infant intravenously via the umbilical vein in doses of 0.2 mgm. of Nalline or 0.05 mgm. Lorfan. For an intramuscular injection, twice this amount should be given. These drugs are of no value in the treatment of depression caused by barbiturates or general anesthesia and indeed may aggravate the condition. If a narcotic has not been used these antagonists, being mild narcotics themselves, will increase the depression rather than reduce it.[37]

The other indicated drugs are the mild cerebral and respiratory stimulants, caffeine (30 to 50 mgm. I.V.) or Ritalin (methylphenidate, 1.0 to 1.5 mgm. I.M.) which can be used in the presence of intoxication of the newborn with barbiturates or central nervous system depressants other than narcotics. In a small group of 18 depressed babies, Gale[38] found Ritalin effective in producing a marked increase in crying, bodily and respiratory activity without any serious side-effects. Despite their wide margins of safety, these agents are potentially dangerous because of the false sense of security which may be engendered by their routine use.

Picrotoxin, Metrazol, Coramine and alpha-lobeline are powerful but very dangerous central nervous system stimulants whose use is ill-advised and should be condemned in every form and situation. Megimide and Daptazole were originally thought to be specific barbiturate antagonists. However, it soon became apparent that these drugs were also potent central nervous system stimulants and on this basis their use in infants is unwarranted and potentially hazardous.

The role of epinephrine in infant resuscitation is as a cardiac stimulant, to be used only in the presence of cardiac arrest after the heart has been massaged through the intact chest. Administration without cardiac massage serves only to deposit the drug in a static pool within the heart. It is necessary to circulate the agent through the coronary vessels into the myocardium where it will be effective in initiating systole.

In summarizing the evidence against the use of analeptic drugs, it should be emphasized that most of these drugs which have been mentioned are actually stimulants whose therapeutic dosage is very close to the convulsive dose. Depression follows stimulation and will be superimposed upon the original depression. Stimulant drugs may cause irreparable damage during anoxia by increasing cerebral demand for oxygen in excess of available supply. In addition, they may hasten destruction of brain cells which are already damaged by hypoxia, by further increasing their metabolism. Therefore, analeptics should not be administered in the presence of hypoxia and are contraindicated under circumstances in which prolonged anoxia has existed. It cannot be too often repeated that the most important measures in infant resuscitation are the establishment and maintenance of a patent airway and adequate ventilation.

Hypothermia

In adults, cooling decreases the oxygen requirements of the body. Attempts have been made to apply the principles of hypothermia in the care of the newborn. Westin et al[39] have cooled six asphyxiated human infants in running water at temperatures between 8° and 14°C. In three cases spontaneous respirations began without further treatment and in the remaining infants transfusions of oxygenated blood were required before breathing started. Five of the six infants are alive, growing and apparently normal. These studies are unfortunately without controls and are therefore difficult to evaluate properly. In addition, it is not known whether much simpler and safer techniques of resuscitation such as artificial ventilation of the lungs would have sufficed since these measures were not used.

In a well controlled study of 91 pairs of premature infants, Silverman and his associates[40] have found statistically significant evidence which suggests that, far from being beneficial, hypothermia may actually be harmful to the infant and may prejudice his chances of survival. These results are in accord with studies by Adamsons[41] on the oxygen requirements of newborn rabbits at different temperatures. He found that lowering of the surrounding temperature elicited a prompt and considerable increase in oxygen consumption which was proportionally greater in the newborn than in the older animals. In a neutral environment (in which metabolism is minimal) hypoxia resulted in a sustained hyperpnea. The latter response was significantly impaired at lower environmental temperatures.

At our present state of knowledge hypothermia cannot be recommended for use in the resuscitation of the newborn. Until more is known about the baby's response to his thermal environment our efforts should be directed towards maintaining his temperature as close to 98.6°F. as possible.

Aspiration Of Stomach

Since 1952 it has been the policy at the Sloane Hospital for Women to catheterize and aspirate the stomach of every infant without regard to the route of delivery.[42] This is performed only after the respirations of the infants are well established. A soft two-holed No. 12 Rusch rubber catheter is attached to a glass bulb (De Lee) with a one-way trap and a rubber suction mouth piece. If the tip of the catheter is not seen in the left half of the abdomen a short puff of air is used to confirm its position.

There is a threefold purpose for this routine catheterization. First is the possible prevention of regurgitation and aspiration. However, perhaps the more important reasons are the ruling out of esophageal atresia, and measuring the gastric contents. The average volume found in infants delivered by cesarean section is 7.2 cc. (range 0 to 50 cc.); in breech deliveries it is 4.3 cc. (range 0 to 15 cc.) and in vaginal vertex it is 5.7 cc. (range 1 to 20 cc.). If 25 to 50 cc. are aspirated, an obstructive lesion of the upper gastrointestinal tract should be suspected and the infant studied closely with X-ray films of the abdomen, and further emptying and measuring of stomach contents meanwhile withholding fluids by mouth. If over 50 cc. are aspirated initially, X-rays are taken within the hour. The absence of gas below the pylorus indicates obstruction and necessitates early exploration.

Summary

The physiological basis for the prevention of respiratory depression and techniques in neonatal resuscitation has been presented. Almost all infants are born biochemically asphyxiated to some degree. If there is a delay in establishing ventilation in an apneic or hypoventilating infant, the normal asphyxia of birth will progress rapidly. Because of the speed with which changes in the acid-base balance take place, a method of treatment was outlined which stressed prompt effective resuscitation. The cardinal principles of infant resuscitation are: establishment and maintenance of a patent airway from birth; early but gentle expansion and ventilation of the lungs either by stimulation of spontaneous respiration or by artificial means; and finally continuous evaluation of the condition and response of the infant to resuscitation.

REFERENCES

1. James, L. S.: Changes in the heart and lungs at birth. J. Pediat., 51: 95, 1957.

2. Barcroft, J.: Researches on prenatal life. Springfield, Ill., 1946, Charles C. Thomas, Publisher.

3. Dawes, G. S., Jacobson, H. N., Mott, J. C., and Shelley, N. J.: Some observations on the foetal and newborn Rhesus monkeys. J. Physiol., 152: 271, 1960.

4. Misrahy, G. A., Beran, A. V., Spradley, J. F., and Greenwood, V. P.: Fetal brain oxygen. Amer. J. Physiol., 199: 959, 1960.

5. James, L. S., Weisbrot, I. M., Prince, C. E., Holaday, D. A., and Apgar, V.: The acid-base status of human infants in relation to birth asphyxia and the onset of respiration. J. Pediat., 52: 379, 1958.

6. James, L. S.: Acidosis of the newborn and its relation to birth asphyxia. Bull. Sloane Hosp. Women, 5: 107, 1959.

7. Potter, E. L.: Pathology of the fetus and newborn. Chicago, 1952, Year Book Publishers, Inc., p. 240.

8. Whittenberger, J. L. and Cook, C. D.: Neonatal resuscitation, Seminar report, 4: 22, 1959.

9. Cook, C. D., Hellieson, P. J., and Agathon, S.: Relation between mechanics of respiration, lung size and body size from birth to young adulthood. J. Appl. Physiol., 13: 349, 1958.

10. Cook, C. D., Lucey, J. F., Drorbaugh, J. E., Segal, S., Sutherland, J. M., and Smith, C. A.: Apnea and respiratory distress in the newborn infant. New Eng. J. Med., 254: 562, 1956.

11. Karlberg, P.: Physiology of prematurity. Transactions of the 2nd Conference, March, 1957, Josiah Macy, Jr. Foundation, p. 77.

12. Farber, S. and Wilson, J. L.: Atelectasis of the newborn. Am. J. Dis. Child., 46: 572, 1933.

13. Day, R., Goodfellow, A. M., Apgar, V., and Beck, G. J.: Pressure time relations in the safe correction of atelectasis in animal lungs. Pediatrics, 10: 593, 1952.

14. Karlberg, P.: The adaptive changes in the immediate postnatal period, with particular reference to respiration. J. Pediat., 56: 585, 1960.

15. Swann, H. G., Brucer, M., and King, B. R.: Assay of resuscitative procedures. J. Appl. Physiol., 5: 421, 1953.

16. Moya, F.: Obstetric anesthesia: General principles. Bull. Sloane Hosp. for Women, 6, 41, 1960.

17. Dawes, G. S.: Adaptation to extra-uterine life, in Report of 31st Ross Pediatric Research Conference, 1958, Ross Labs., Columbus, Ohio, p. 20.

18. Moya, F. and James, L. S.: Medical hypnosis for obstetrics. J.A.M.A., 174: 2026, 1960.

19. Moya, F.: Anesthesia for obstetrics. Current research and practice at the Sloane Hosp. for Women. In preparation.

20. Moya, F.: Use of a chloroform inhaler in obstetrics. N. Y. State J. of Med., 61: 421, 1961.

21. Hon, E. H.: Observations on pathologic fetal bradycardia. Am. J. Obst. & Gynec., 77: 1084, 1959.

22. Steer, C. and Fenton, A.: Fetal distress and perinatal mortality. In preparation.

23. Abramson, H. (Editor): Resuscitation of the newborn infant. St. Louis, 1960, C. V. Mosby Co., pp. 141-161.

24. Apgar, V., Holaday, D. A., James, L. S., Weisbrot, I. M., and Berrien, C.: Evaluation of the newborn infant—Second report. J.A.M.A., 168: 1985, 1958.

25. Elam, J. O., Ruben, A. M., Greene, D. G., and Bittner, T. J.: Mouth-to-nose resuscitation during convulsive seizures. J.A.M.A., 176, 565, 1961.

26. Cross, K. W., Klaus, M., Tooley, W. H., and Weisser, K.: The response of the newborn baby to inflation of the lungs. J. Physiol., 151: 551, 1960.

27. Moya, F., James, L. S., Burnard, E. D., and Hanks, E.: Closed chest cardiac resuscitation in the newborn. Anes., 22: 644, 1961.

28. Greene, D. G., Elam, J. O., Dobkin, A. B., and Studley, C. L.: Cinefluorographic study of hyperextension of the neck and upper airway patency. J.A.M.A., 176: 570, 1961.

29. Kreiselman, J.: Improved apparatus for treating asphyxia of newborn infants. Am. J. Obst. & Gynec., 39, 888, 1940.

30. Heyman, A.: Infant resuscitation. J. Pediat., 16: 106, 1940.

31. Burnard, E. D. and James, L. S.: Failure of the heart after undue asphyxia at birth. Pediatrics. (In press).

32. Goodard, R. F., Clark, J., and Bennett, V. R.: Newer concepts of infant resuscitation and positive pressure therapy in pediatrics. J.A.M.A., 89: 70, 1955.

33. Moya, F.: Unpublished data.

34. Donald, I. and Lord, J.: Augmented respiration. Lancet, 1: 9, 1953.

35. Avery, M. E. and O'Doherty, N.: The effects of body tilting on the resting end expiratory position of newborn infants. Society for Ped. Research, 31st Annual Meeting, Atlantic City, N. J., May 4, 1961.

36. Sarnoff, S. J.: Electrophrenic respiration in asphyxia neonatorum. Brit. Med. J., 1: 1515, 1951.

37. Eckenhoff, J. E. and Oech, S. R.: Effects of narcotics and antagonists upon respiration and circulation in man. Clin. Pharmacol. Ther., 1: 483, 1960.

38. Gale, A. S.: Clinical evaluation of methyphenidate (Ritalin) hydrochloride in the newborn infant. J.A.M.A., 170: 1408, 1960.

39. Westin, B., Miller, J. A., Nyberg, R., and Wedenberg, E.: Neonatal asphyxia pallida treated with hypothermia alone or with hypothermia and transfusion of oxygenated blood. Surgery, 45: 868, 1959.

40. Silverman, W. A., Fertig, J. W., and Berger, A.: The influence of the thermal environment upon the survival of premature infants. Pediatrics, 22: 876, 1958.

41. Adamsons, K.: Breathing and thermal environment in young rabbits. J. Physiol., 149: 144, 1959.

42. Moya, F., Apgar, V., James, L. S., and Berrien, C.: Hydramnios and congenital anomalies. J.A.M.A., 173: 1552, 1960.

Role Of The Anesthesiologist In The Management Of Pain

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"I esteem in the office of the physician not only to restore health but to mitigate pain and dolors."

THUS did Sir Francis Bacon describe so elegantly one of the primary obligations of every practitioner of the healing arts. Certainly the control of pain has always been one of the most important reasons for the existence of the physician and today, despite the monumental advances of medicine, it remains one of the most vexing problems which is encountered by almost every doctor of medicine. Generally the anesthesiologist is concerned with the prevention of pain inherent in surgical operations. However, during the past several years it has become more and more recognized that he also has certain special attributes which make him fit to help in the control of pain of certain non-operative disease states. It is the purpose of this paper to consider the role of the anesthesiologist in this phase of medical practice, to briefly discuss some of the methods which are employed for this purpose, and to summarize the current concept of pain management. In order to facilitate this consideration it is first necessary to briefly discuss some fundamental concepts about pain and its nature. Limitation of space permits only brief mention of the most important aspects of the subject. A more detailed discussion may be found elsewhere.[1,2]

The Nature Of Pain

Although people know what is meant by the word "pain", many have gerat difficulty in defining it. This is so because pain is a highly personal affair entirely subjective in nature and a complex phenomenon which almost defies enquiry. Aristotle considered pain as a "quale" or passion of the soul, a state of feeling, the antithetic experience from pleasure, and the epitome of unpleasantness; together with pleasure, there were the main normal driving forces that guided man's actions. This concept was accepted until the middle of the 19th century, when scientists began to consider pain as a sensation.

The origin of pain may be a stimulus in the somatic or visceral structures of the body and acting on the peripheral part of the nervous system, or it may be in the central nervous system and projected to a distant part of the body, as is found in the pain of the thalamic syndrome, in the painful aura of sensory epileptiform seizures, or in the conversion type of pain in hysteria. Here we are primarily concerned with pain of peripheral origin, because it is this type which is most frequently encountered by the practitioner. Currently some authorities[2] believe pain (of peripheral origin) to be composed of two parts: the perception of pain and the reaction thereto. Perception of pain is a neurophysiologic process which has special structural, functional, and perceptional properties and is accomplished by means of relatively simple and primitive neural receptive and conductive mechanisms. On the other hand, the reaction to pain is a complex process which involves the cognitive functions to the individual. It represents the emotional and physiologic expressions resulting from the perception of pain; it is what the individual feels, thinks, and does about the pain he perceives. Obviously, the reaction to pain is different for each individual; indeed, with the passing of time and the accumulation of life experience, it is never exactly the same for an individual from one time to another.

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Although this artificial dichotomy of the pain experience has proved useful in studying it, it is doubtful that there is such a thing as a pure sensation of pain separate and distinct from the influence of reaction.[3] For one thing, the processing of the psychic reaction to the original stimulus probably begins before awareness of the sensation has been achieved. There are many (including this writer) who firmly believe that the essential part of pain is awareness and no other sensation or experience can be termed pain unless it is felt as such. The obvious conclusion is that the "quale" or feeling state, i.e., the patient's complaints, and his physical and mental responses are the manifestations of the reactions and are the most relevant aspect of the pain experience—certainly to the patient.

PAIN PATHWAYS

The nervous pathways for pain of peripheral origin may be said to be organized into three distinct units or relays.[1] The first relay consists of peripheral sensory neurons whose cell body are located in the sensory root ganglia of spinal or cranial nerves. The axons of these neurons bifurcate into a central branch which enters the central nervous system by way of the sensory root of the involved nerve and a peripheral branch which courses through spinal or cranial nerves to reach somatic structures including the skin, subcutaneous tissue, muscles, bones and joints, as well as viscera.

The second relay, often called the connector or internuncial neurons, of the spinal nerves, have their cell body in the gelatinous substance of Rolando where they synapse with peripheral neurons and an axon which either forms simple reflex arcs, or may synapse with neurons within the internuncial pool, or it may cross over in the ventral commissure to the opposite side to form the lateral spinothalamic tract. The lateral spinothalamic tract, usually considered as the primary pathway for conduction of noxious impulses which are interpreted as pain as well as pathways for temperature, ascends as an unbroken path within the anterior column of the spinal cord and then through the brain stem to terminate in the thalamus. Pain from the head region is conveyed by receptor neurons which have their cell bodies in the sensory ganglia of the 5th, 7th, 9th and 10th cranial nerves. The peripheral fibers of these neurons course along the peripheral branches of these cranial nerves while the proximal fibers enter the brain stem where they all become associated with the sensory nucleus of the trigeminal nerve. Recent studies[4] indicate that in the brain stem the main sensory pathways send collaterals into the reticular formation and that certain thalamic nuclei give rise to the "diffuse thalamic projecting system" which receive somatic and visceral impulses transmitted by the reticular activating system. It has been suggested that these collaterals have as much to do with the perception of pain as do the main pathways.

The pain impulses reaching the thalamus are transferred to central sensory neurons which are located in the thalamacortical radiation. From the nuclei of the diffuse thalamic system there is a projection to the anterior portion of the frontal lobe. It has been suggested that it is disturbance of this mechanism which diminishes the affective component of sensory perception and deprives pain of its unpleasantness.[4]

The cortex is the highest level of integration resulting in the normal perception of pain. It is here that the sensation is converted into a painful experience by incredibly complex physiopsychologic mechanisms: sensation becomes perception; percepts are further elaborated into concepts; concepts cluster together to form ideas and indeational constellations; and all of these events undergo mnemonic engramatization, i.e., formation of memory traces which in part form the basis of the reaction to the sensation. Here occurs the formulation of the individual reactions to the perception or appreciation of pain. Moreover, it is here that the appreciation of the stimulus is modified by the state of activity of other cortical centers, particularly those located in the frontal lobe, so that the appreciation is aggravated or inhibited.

Methods Of Pain Control

From the standpoint of approaches to treatment it is desirable to differentiate that which is primarily structural, primarily physiologic, and primarily psychologic. When there is a significant psychic factor, as in many psychophysiologic disorders, or when there is pain related to personality factors but without demonstrable physiologic changes, the treatment of the psychologic problem becomes paramount. In these cases it is essential that one treat the underlying psychophysiologic condition and the fundamental methods of psychiatric management must be considered. A discussion of psychiatric technic is beyond the scope of this chapter, but the importance of this method in managing patients with severe intractable pain cannot be over-emphasized. An excellent discertation on this subject has been written by Ripley.[5]

Now let us focus our attention on patients with pain of structural etiology and altered physiologic function without structural change. Although psychologic support is very useful in helping these patients, the main treatment is directed to the elimination of the primary disease. This may be accomplished medically by means of drugs (antibiotics, antispasmodics, spasmolytics (curare), vasodilators, vasoconstrictors, etc.), by surgical extirpation of the lesion, or by physical methods (roentgen therapy, physical therapy, etc.). In such patients with pain due to self-limiting medical disease or due to disorders which indicate surgical extirpation, the solution of the pain problem is usually clear-cut and relatively simple. However, in patients with protracted pain, the cause or mechanisms of which cannot be ascertained or eliminated, the problem is often every difficult from every viewpoint.

Pain of long-standing, no matter whether moderate or severe, produces physical and psychologic depletions which vary widely between individuals and may be evidence of basic personality differences difficult to manage.[6,7] Patients with chronic pain have a gradual but complete alteration in their attitude to their environment. Consequently, they have no other interest and the pain becomes in fact a consuming problem which completely dominates their lives. In such cases interruption of pain pathways with consequent complete abolition of pain perception cannot be hoped to solve the problem entirely. In many instances the problem is much more complicated and necessitates a long-term application of psychotherapeutic and rehabilitative measures as well.

Such cases require a well planned attack that is based upon fundamental principles which must be followed if good results are to be achieved.[1,7] A diagnosis and localization of the source of pain usually requires a thorough detailed history and physical examination and a correct interpretation of medical, neurologic, radiologic, and laboratory data. After a diagnosis has been established and mechanism of pain is determined, it is essential to map out carefully the best course of treatment. In determining what procedure or procedures are to be used, it is necessary to consider: (a) the cause of pain, its site, type and mechanism, its intersity and its probable duration; (b) the nature of the disease causing the pain; (c) the age of the patient, his physical and mental status, his life expectancy, and his obligation to his family and the community; and (d) methods which are locally available and practical under the circumstances.

All patients with severe chronic pain require psychologic support and moral encouragement. The first positive step in relief of intractable suffering occurs when a physician manifests a responsibility and willingness to care for the patient. In addition to the benefits made possible by modern science, the physician should bring the patient a sympathetic understanding, kindness and cheerfulness, and reassurance. Since such patients are quick to sense an attitude of defeatism or lack of interest, the physician should do all he can to instill into the patient confidence and a sense of security based upon the conviction that all will be done to relieve his suffering.

The management of many patients with severe intractable pain problems require a multi-phasic approach by the application of several well-chosen combinations of therapeutic methods, each specific for certain desired effects. It is obvious that not infrequently effective diagnosis and therapy is only possible by the concerted effort of the patient's doctor and a number of specialists who contribute their individualized skill toward a common goal. Among this group is the anesthesiologist.

ROLE OF THE ANESTHESIOLOGIST

As first pointed out by Alexander,[6] the role of the anesthesiologist in the management of intractable pain may be one of two categories: (a) as a provider of special technical aid which may serve to promote the over-all management by diagnostic or therapeutic procedures; (b) as the individual responsible for the over-all management of the patient. In most instances, he will be in the first category and will act as a consultant whose contribution will, of necessity, be an exercise rather than a discipline, since the procedures he can offer are inherently limited in their place among the many things which must be done for most patients with severe intractable pain.

The anesthesiologist has a number of special attributes which make him a valuable colleague, who, under suitable combination of circumstances, can contribute significantly to the solution of refractory pain problems.[1,6] He has or should have developed exceptional skill and dexterity with nerve-block procedures to interrupt pain pathways for surgical operations, and although proficiency in this method for surgical anesthesia does not necessarily insure success when they are employed to control nonsurgical pain, it is a great asset. His everyday experience with depressant drugs, particularly the analgesics and the sedatives, make him acutely aware of the definite limitations and the disadvantages of, as well as complications from the use of these medicinals. This knowledge and experience make him a particularly useful consultant in the management of this phase of therapy. Finally, the anesthesiologist, in his daily practice, sees and cares for patients who fear pain and consequently he naturally develops a sympathetic understanding, a considerate feeling and patience for those who suffer. This is, without doubt, the most important and greatest single qualifying attribute.

NERVE BLOCKS USEFUL IN THE MANAGEMENT OF PAIN

In the management of patients with persistent pain nerve blocks can be used as diagnostic, prognostic, prophylactic and/or therapeutic measures.[1,8] *Diagnostic blocks* are performed to secure information concerning the mechanism of pain present in the particular case and in determining the pain pathways. In this way it may be used effectively to aid in differentiating diseases. Occasionally a block is performed to determine what the patient's reaction will be to a situation in which the pain pathway may be interrupted. *Prognostic blocks* are used to help predict the effects of surgical section and thus facilitates proper selection of patients for neurosurgery. Moreover, such prognostic blocks afford the patient an opportunity to experience the numbness and other effects that follow interruption of somatic pathways. *Prophylactic blocks* are limited to those patients in whom surgical or accidental trauma or infection is likely to produce pain and dysfunction.

Therapeutic nerve blocks in managing painful states have wide clinical application which is increasing.[1] The beneficial therapeutic effects of nerve blocks are brought about by interruption of pain pathways, interruption of abnormal reflex phenomena and production of vasodilatation. Analgesia consequent to interruption of pain pathways not only affords the patient relief and comfort, but permits the application of other therapeutic measures which would otherwise be difficult or even impossible to use.[1, 8] Furthermore, analgesia allows time for more adequate preparation of the patient prior to surgical operations. Temporary block of abnormal reflex phenomena can produce prolonged benefit by breaking up the so-called vicious circle of a number of painful disorders. In conditions such as reflex sympathetic dystrophy and posttraumatic vasospastic disorders an abnormal number of afferent impulses originating from the site of trauma or infection sets up an abnormal state in the spinal cord which spreads to involve autonomic and somatic efferent components, resulting in abnormal vasospasm, increased sudomotor and other sympathetic functions, as well as skeletal muscular spasm.[9] These, in turn, act as a new source of noxious stimulus which further aggravates the disturbance in the spinal cord, thus setting up a vicious circle. Interruption of the vicious circle anywhere along its course with local anesthetics frequently is followed by improvement which outlasts the block by hours and even days.

Agents

Interruption of sensory pathways in patients with pain can be effected with local anesthetics that have transient or prolonged action. In general, temporary blocks are produced by aqueous solutions of local anesthetics and are used for diagnosis, prognosis, and prophylaxis and also for therapy of certain self-limiting diseases and reflex disturbances. Prolonged blocks are produced by injecting neurolytic agents such as phenol and alcohol and are usually reserved to control severe, intractable pain in patients in whom neurosurgical interruption is not feasible or those who refuse operation.

Technics

Any peripheral nerve—whether cranial, spinal or autonomic—can be approached with a needle and its function suspended.[1, 8] Moreover, the interruption can be effected at various sites along the course of the nerves. Proper decisions as to the optimal site of injection in a particular case requires thorough knowledge not only of the anatomy of the involved pathways, but also of the mechanism producing the pain. All nerve block technics are useful and have their own perculiar indications and disadvantages.

Local infiltration or topical application of local infiltration are frequently used in treating musculoskeletal disorders, particularly those initiated and/or perpetuated by so-called trigger areas and in treating sprains, fractures, bursitis, tendinitis, epicondylitis, peri-arthritis, certain forms of arthritis, acute torticolles and many other conditions.

Block of cranial and spinal nerves is indicated in the management of neuralgia, in controlling cancer pain, in confirming diagnosis of certain peripheral vascular disorders and the therapy of any other severe intractable pain which has a peripheral or segmental nerve distribution. Temporary blocks of the spinal nerves of the extremities may be used to produce analgesia and vasodilatation in patients with peripheral vascular disorders and reflex sympathetic dystrophy, although in such cases sympathetic blocks are preferable. Since with rare exception the spinal nerves are mixed nerves so that it is impossible to block sensory fibers without affecting motor fibers, the injection of alcohol to produce prolonged interruption is absolutely contra-indicated In addition to the resultant paresis or paralysis, somatic nerve blocks with alcohol are not infrequently followed by chemical neuropathy with consequent neuralgia. The only time one should consider alcohol blocks to somatic nerves is in patients with inoperable cancer with a poor prognosis in whom the pain pathways cannot be interrupted by other means.

Sympathetic blocks may be indicated as a diagnostic or therapeutic measure in peripheral vascular disease, reflex sympathetic dystrophies and visceral pain. In the acute phase of these conditions sympathetic blockade is valuable not only as a diagnostic-prognostic procedure, but also as a definitive therapeutic measure. In chronic disorders temporary sympathetic blocks are useful as a diagnostic-prognostic procedure. Prolonged interruption in such instances is best effected by surgery, although in poor risk patients alcohol blocks may be indicated.

Peridural block is one of the most useful technics in managing severe, persistent pain of the trunk and lower extremity. By inserting a continuous catheter the duration of the block can be extended for hours, days, and even weeks and thus increase the usefulness of the technic. Since it effects interruption of somatic and sympathetic fibers, it may be used when block of both pathways is indicated. I have used it for management of acute vasospastic disorders, reflex sympathetic dystrophies, as a temporary measure in cancer pain, and in the control of the severe excruciating pain of acute pancreatitis, biliary colic, renal and urethral colic, and other severe painful disorders of the viscera. It also is very useful in controlling severe pain consequent to multiple rib fractures, fractures of the spine, pelvis and lower extremities, and in relieving severe postoperative pain.

Subarachnoid block with local anesthetic may be used as a diagnostic, prognostic and therapeutic measure in managing pain of the abdomen and lower extremities. Differential spinal block is a useful diagnostic, prognostic and therapeutic tool in painful disorders of the lower portion of the body. *Subarachnoid alcohol block,* when properly done, produces a chemical posterior rhizotomy. It is useful in relieving cancer pain in approximately 60 per cent of patients. The duration of pain relief varies from several weeks to many months and sometimes years. The procedure should be reserved for patients with intractable pain of cancer and other chronic disorders in whom neurosurgery is contra-indicated.

Pain Syndromes

NEURALGIA

The term *neuralgia* denotes pain of any type having a segmental or peripheral nerve distribution. It is usually the symptomatic expression of an inflammatory, circulatory, toxic, degenerative, metabolic or neoplastic neuritis. Therefore, it is important to ascertain the cause of the neuralgia and, if possible, to remove it. In most instances nerve blocks are valuable only as diagnostic or prognostic aids, or as a therapeutic measure in selected patients with certain types of neuralgia.

Patients with trigeminal neuralgia should receive one or two blocks with alcohol to afford relief and to give the patient the opportunity to experience numbness before retrogasserian neurotomy is done. In patients who are poor risks or those who refuse the operation, repeated alcohol blocks afford sufficient relief to be considered a good substitute for the operation. Tic douloureux involving the glossopharyngeal nerve is uncommon, but I have seen seven cases in which the patients have been temporarily relieved with prognostic blocks and permanently cured with intracranial section of the nerve.[10] Since prolonged block of the nerves with alcohol may produce serious complications related to their motor function, alcohol injection should be avoided.

The pain occipital neuralgia is often permanently alleviated with repeated temporary blocks of the occipital nerves or paravertebral blocks of the 2nd and 3rd cervical nerves.

Segmental neuralgia involving one of the spinal nerves suggests pathologic process of the roots or the formed nerve as it passes through the intervertebral foramen. In young people it is usually secondary to an infectious process or injury whereas in older people it suggests arthropathy or neoplasm. Obviously, in each instance a thorough examination should be made to ascertain the cause. Paravertebral nerve blocks may be used as diagnostic-prognostic procedures. In patients with post-infectious or postoperative neuralgia, herpes zoster, and those having severe pain due to fractures, muscle spasm and other musculoskeletal disorders, repeated temporary paravertebral or peripheral nerve blocks may be effective in providing relief.

Patients with severe excruciating pain due to *herniated intervertebral disc* continuous segmental epidural block is of great value, not only to provide complete relief of pain, but also to relieve the severe muscle spasm and thus facilitate definitive conservative management consisiting of traction.

In patients with severe *intractable radiculalgia* or segmental neuralgia the cause of which is unknown or if known it cannot be eliminated, it may be advisable to carry out diagnostic blocks to determine the segments involved and to consider rhizotomy. In poor risk patients alcohol injection into the subarachnoid space may be employed to afford prolonged relief of pain.

Meralgia paraesthetica is a neurologic disorder that involves the lateral femoral cutaneous nerve and may be due to a variety of causes. As in the case of other types of neuralgia, it is important to ascertain the etiology and eliminate it if possible.

CAUSALGIA AND REFLEX SYMPATHETIC DYSTROPHIES

Major causalgia is a condition that is due to incomplete severance of a major peripheral nerve such as the median or sciatic, and is characterized by severe burning pain, hyperalgesia, and vasomotor and sudomotor disturbances. This condition is very seldom seen in civilian practice, but is one of the most difficult problems that confront the military surgeon during wartime. Sympathetic blocks are extremely valuable to provide temporary relief and to predict the effects of sympathectomy which is the therapeutic procedure of choice. In true causalgia sympathectomy almost always effects complete and permanent relief.

Minor causalgias, posttraumatic pain syndromes, shoulder-hand syndrome, posttraumatic osteoporosis and other forms of reflex sympathetic dystrophy are usually characterized by excessive, unduly prolonged pain, vasomotor disturbances, delayed functional recovery and trophic changes. These conditions are much more important and serious problems because they occur much more frequently and are encountered by all physicians, but particularly those who practice industrial medicine; and also because they present confusing symptoms and often remain undiagnosed for a long period of time. Early institution of continuous sympathetic block which is maintained for 2 to 3 weeks is usually effective in completely relieving the pain, restoring circulation to normal, permit full motion, and over-coming the perpetuating factor of disease so that trophic sequelae are minimized. For optimal results it is essential that the block be instituted early and that sympathetic interruption be continuous and prolonged. This can be effected by the so-called continuous technic or by the injection of phenol which produces a truly continuous interruption for several days. Patients in whom therapy is delayed frequently develop a chronic form of disease which then requires physical therapy, exercise and psychotherapy as adjuvant to the block.

Pain following amputation may be experienced in a phantom limb or may develop in the stump. The pain may be of burning quality or neuralgic, lancinating, or the patient may experience an extremely abnormal position and tension on the phantom limb which is most uncomfortable. In those patients with local stump pain with or without associated vasomotor phenomena, infiltration of the neuromata or of the tender areas may effect temporary relief. In such cases a number of repeated injections may be tried to provide prolonged relief. If the patient derives temporary relief, revision of the stump may be considered. In patients who complain of a burning and aching discomfort in the stump or phantom limb, sympathetic blocks should be carried out as diagnostic and prognostic procedures. If the block affords complete relief of pain and eliminates the vasamotor disturbances, it should be repeated on several occasions to confirm the results and also to ascertain the duration of their relief. If relief is progressively longer and outlasts significantly the duration of the block, injection of phenol or sympathectomy should be seriously considered. In other patients with phantom limb pain it may be necessary to carry out several diagnostic-prognostic subarachnoid blocks. Currently chordotomy is considered the most successful procedure for severe intractable phantom limb pain.[11]

MUSCULOSKELETAL PAIN

One of the most useful and productive clinical applications of nerve block therapy is in the management of myofascial pain syndrome, a group of disorders characterized by the presence of a trigger area in one of the muscles or connective tissue, together with a specific syndrome of pain-muscles spasm-tenderness-stiffness, limitation of motion, weakness, and occasionally autonomic dysfunction.[12] These disturbances, previously described by such terms as myalgia, myositis, fibrositis, fibromyositis, fascitis, myofascitis, muscular rheumatism and muscular strain, constitute the most common musculoskeletal disabilities of the shoulder girdle, neck and low back and are among the most frequent causes of severe, disabling pains. They are usually the results of sudden traumata to myofascial structures but may also be initiated by repeated microtraumata of daily living, chronic muscular strain, chilling of fatigued muscles, arthritis, acute myositis, nerve injuries and visceral ischemia. The trigger area is usually located at some distance from the area of pain and associated phenomena. The most effective and specific treatment for the myofascial pain syndrome is local infiltration of the trigger area. To locate the trigger point the suspected area is palpated carefully with a finger or with the end of a fountain pen, or with a Medco-Sonlator. If the condition is treated promptly several injections given at intervals of 2 to 3 days are sufficient. On the other hand, if the condition is chronic, it may be necessary to carry out 6 to 10 such injections. I prefer 0.1 per cent Pontocaine. Hydrocortizone, 25-50 mgm, is injected into the trigger area after the local anesthetic. In addition to the injection it is necessary to use physical therapy and passive and active motion of the part.

Severe muscle spasm secondary to direct injury or as a reflex manifestation of neurologic, somatic, visceral or psychosomatic disorders may be effectively treated with infiltration of the spastic muscle or block of the nerves supplying that muscle. The same applies to the management of muscle contusion and strains which usually follow direct injury or violent contraction of the muscle.

Tendinitis and bursitis frequently though not invariably exist together. Infiltration of local anesthetic followed by infiltration of 10 to 25 mgm. of hydrocortisone is the best form of treatment. In chronic bursitis and tendinitis local and other block therapy are less useful because these patients have only mild pain which may be controlled with non-narcotic analgesics. Physical therapy and active motion are the most important forms of treatment.

Infiltration of local anesthetic drugs and/or steroids either alone or in combination with sympathetic block is frequently effective in relieving pain and in improvement of the function of the joint involved in periarthritis. Although scapulohumeral periarthritis is the most common (probably because the shoulder is more vulnerable to musculo-skeletal disorders than almost any other joint in the body) other joints may be affected. Active treatment consists of relief of pain with blocks, improvements of function of the joint, and psychologic support.

Acute arthritis and arthalgia due to injury and associated with severe pain can be treated with local infiltration followed by intra-articular injection of hydrocortizone. Periarticular and intra-articular injection are also useful in managing persistent severe pain due to degenerative arthritis of the major joints such as the knee, hip, shoulder and elbow. It is less useful in managing arthritis of the spine, probably because it is more difficult to accurately inject the various complex joints in this region.

Severe pain due to fractures, dislocations, periostitis, epicondylitis and chondritis, especially that involving the costal cartilages, can be effectively relieved by repeated blocks.

Severe postoperative pain not relieved by the usual doses of narcotics can be completely relieved with intercostal blocks carried out with solutions of long-acting local anesthetics such as Pontocaine or Nupercaine. In some instances segmental epidural block is even more practical.

Pain Of Malignant Growth

Block of sensory nerves has a particular usefulness in the management of cancer pain. Although this method has certain limitations, it has more to offer than narcotic analgesics and should be employed as a complement to these drugs and/or neurosurgery.[1,8,13,14] Effective blocks produce adequate relief of pain, enable the sufferer to receive more intensive radiation therapy and other forms of medical treatment which otherwise could not be tolerated. When properly carried out and effective, nerve blocks are not accompanied by the depression of respiration, circulation, gastrointestinal function and other visceral disturbances inherent in narcotic therapy. In patients whose physical condition contra-indicates neurosurgical interruption, proper application of nerve blocks with alcohol or other neurolytic agents can be considered as a good substitute.

The selection of the appropriate technic depends upon the location and nature of the pain, the type of neoplasm and its grade of differentiation, and the structures it might invade. It is essential that a block procedure is selected which will afford sufficient widespread analgesia to obviate repeated attempts. Moreover, in order to obtain optimal results it is necessary to integrate this method with other forms of treatment.

Palliative procedures such as by-pass operations in the gastrointestinal tract, radiation therapy, castration, the administration of endocrines, nitrogen mustard, and radioactive compounds, bilateral adrenalectomy, and other procedures which temporarily eliminate the cause of the pain, first must be tried in indicated cases. The relief of pain accompanying these measures is often dramatic and represents a gain in time and courage. It is only when these measures fail or are not feasible that the symptomatic control of pain with narcotics, nerve blocks and/or neurosurgery should be considered.

Cancer pain involving the face is effectively managed by blocking of one of the major branches of the trigeminal nerve or the gasserian ganglion.[14] Occasionally it is necessary to also block the upper two or three cervical nerves. For pain in the chest and trunk subarachnoid alcohol is very effective. Continuous epidural block is used as a prognostic-diagnostic procedure and also to relieve the patient for several days to permit adequate psychologic and physical preparation for the alcohol block. Subarachnoid alcohol block may also be used for pain in the lower extremity and pelvis but there is some risk of involving the nerves to the bladder and lower bowel. Block of the peripheral nerves in the paravertebral spaces or distal thereto is also effective in cancer pain of the trunk, but should be avoided in pain involving the extremities except in those patients who have lost use of the extremity.

Peripheral Vascular Disorders

Repeated or prolonged sympathetic block effected by the catheter technic is of significant therapeutic value in patients with acute traumatic segmentary vasospasm, acute arterial occlusion, arterial aneurysm, acute thrombophlebitis, and acute circulatory insufficiency secondary to frostbite, trench foot, and immersion foot. In all of these conditions the local lesion, whether it be the result of trauma, embolism, thrombosis, chemical irritation, infection, or anoxia, sets up reflex spasm of the collateral vessels that aggravates the circulatory insufficiency which is now much greater than would occur were the collateral vessels not so effected. Sympathetic block, promptly initiated before changes which favor thrombosis develop in the endothelium of the vasospastic collateral vessels, results in reestablishment of normal flow through the collaterals, and may thus prevent gangrene. Nerve blocks should not be done in patients already receiving anticoagulant therapy, lest the patient may develop intractable hemorrhage.[8]

In patients with *Raynaud's disease,* Raynaud's phenomenon, acrocyanosis, and other chronic vasospastic disorders, sympathectomy should be done *if sympathetic interruption is indicated* because of the persistent chronic nature of the local stimulus. Although prolonged improvement in some patients with these conditions has been reported following temporary sympathetic blocks, these procedures should be considered merely as diagnostic-prognostic tools. They are valuable in ascertaining the degree of vasospasm and predicting the effects of sympathectomy.

In *thrombo-angiitis obliterans* there is a constant and occasionally marked arteriolar spasm, which constitutes the principal cause of the intermittent claudication. Transient block of the sympathetic ganglia gives temporary release of the vasospasm and relief of pain, but is of no value as a therapeutic measure. Prognostic sympathetic blocks constitute a reliable test method to predict the effects of sympathectomy, and if the patient is able to walk a significantly greater distance following the block, sympathectomy is recommended.

Arteriosclerosis obliterans is best treated by surgical means. Temporary sympathetic blocks are of no therapeutic benefit and of little or no value in predicting the effects of sympathectomy because in most of these patients there is no increase, but a persistence of normal vasomotor tone. Chemical sympathectomy with phenol or alcohol may be used as a substitute for the operation in patients who refuse operation and in those who are in extremely poor physical condition.[15] However, since lumbar sympathectomy in the hands of a well-trained surgeon imposes little stress on the patient, surgical denervation should be done. In some patients the best results are obtained by vascular grafts. In such cases concomitant surgical or chemical sympathectomy may be of value.

Hyperhidrosis of nervous origin is a disorder of sudomotor function due to sympathetic hyperactivity and is most frequently limited to the hands and feet. In severe cases interruption of the regional sympothetic nerves to the hand and feet is indicated. Sympathetic blocks are used to predict the effects of sympathectomy. Only under unusual circumstances prolonged blocks with phenol or alcohol should be considered.

VISCERAL DISEASES

Disorders of the Head and Neck. Many writers report brilliant success with the use of sympathetic blocks in the treatment of various disorders of the head and neck, including obstruction of the central retinal artery due to embolism or thrombosis, acute optic neuritis, retinitis, chronic optic atrophy, vertigo, tinnitus, atrophic rhinitis, aphonias and atypical facial neuralgia.[16] Unfortunately, in our hands, therapeutic blocks of the autonomic nerves to head and neck have proved ineffective in most of these conditions. Stellate ganglion blocks have also been advocated for the treatment of acute hemiplegia due to cerebral thrombosis, embolism or vasospasm. Although we have noted marked improvement in some of our patients, these results cannot be considered as very significant, especially in view of the known vagaries of cerebrovascular accidents and the tendency to spontaneous recovery. The use of these procedures in patients with residual effects of cerebral vascular accidents is even less effective except for its psychotherapeutic benefit.

Disorders of the Chest. The use of paravertebral alcohol blocks from the symptomatic treatment of angina pectoris constitutes one of the most brilliant chapters in the history of nerve block therapy.[1, 11] During the past quarter of a century, they have played the major role in the management of patients with severe cardiac pain not relieved by medical means. With the recent advance in surgery and anesthesia most patients with intractable angina pectoris can withstand surgical section which is more specific, provides longer lasting relief and is generally better than nerve blocks. However, in patients who, because of their very advanced coronary disease with angina decubitus, syphlitic aortitis (which markedly increases risk of death on the operating table), impending cardiac decompensation, or rheumatic fever with severe regurgitation, are extremely poor surgical risks and in the very old patients who cannot be kept in bed, alcohol blocks constitute an excellent substitute method. The same reasoning may be applied to the management of severe, intractable pain of aortic aneurysm and other disorders of the large vessels.

One of the most important clinical uses of cervico-thoracic sympathetic blocks is to provide prompt relief in patients with severe, intractable pain consequent to acute myocardial infarction. The patient is not only made comfortable, but the strong emotional stress, anxiety, and sense of impending dissolution are eliminated.

Cervicothoracic sympathetic block is effective in providing prompt relief of pain, dyspnea, orthopnea and cyanosis in patients with pulmonary embolism provided the block is done soon after the attack. Of course the pleuritic pain due to pulmonary infarcts can only be relieved by intercostal blocks.

Block of the vagus nerves may be used prior to surgical section as a prognostic procedure in patients with severe, intractable cough and pain due to malignant lesions of the tracheobronchial tree.

It is necessary to carry out this procedure with caution since it usually involves other cranial nerves.

Abdominal Visceral Disease. Sympathetic blocks have been used successfully as diagnostic-prognostic and/or therapeutic procedures in a variety of abdominal visceral disorders. In patients with *chronic pain syndromes* of the lower esophagus, stomach, intestines, biliary organs, pancreas, or any other abdominal viscus, in whom sympathectomy is contemplated, it is advisable to determine preoperatively by means of nerve blocks the segments that transmit the pain and whether or not somatic nerves of the parietal peritoneum are also involved.

It is now generally agreed that block therapy is the best method of controlling the excruciating pain of *acute pancreatitis.*[1] This method is particularly valuable in patients in whom pain cannot be relieved with large doses of narcotics even when these are administered intravenously. The block may be produced by individually injecting the sympathetic ganglia, by splanchnic block, or peridural injection. We prefer continuous peridural block because it provides prompt and complete relief, since it not only interrupts the sympathetic and pain fibers to the pancreas, but also the somatic pain nerves of the parietal peritoneum which are frequently involved by the chemical peritonitis.

Paravertebral block of the splanchnic nerve and 1st and 2nd lumbar ganglia or continuous segmental epidural block may be used in controlling severe ureteral colic. Block of the 3rd and 4th sacral (parasympathetic) nerves is a valuable adjunct in the management of certain patients with urinary retention due to paraplegia. These procedures are particularly valuable as diagnostic-prognostic measures in predicting the effects of alcohol block or transsacral rhizotomy which are considered as the definitive therapy in such cases.[1, 11]

REFERENCES

1. Bonica, J. J.: The management of pain. Philadelphia, Lea & Febiger, 1953.
2. Wolff, H. G. and Wolf, S.: Pain. Springfield, Charles C. Thomas, 1948.
3. Haugen, F. P.: Recent advances in the neurophysiology of pain. Anesthesiol., 16: 490, 1955.
4. Starzl, T. E., Taylor, C. W., and Magoun, H. W.: Collateral afferent excitation of reticular formation of brain stem. J. Neurophysiol., 14: 479, 1951.
5. Ripley, H. S.: Psychologic basis of pain. Chapter 4 in Bonica, J. J.: Management of pain. Philadelphia, Lea & Febiger, 1953.
6. Alexander, F. A. D.: Control of pain. Chapter 28 in Hale, D. E.: Anesthesiology. Philadelphia, F. A. Davis Co., 1954.
7. Bonica, J. J.: Modern concepts of pain control. Med. Rec. & Ann., 50: 245 (Nov.), 1957.
8. Bonica, J. J.: Clinical applications of diagnostic and therapeutic blocks. Springfield, Charles C. Thomas, 1959.
9. Livingston, W. K.: Pain mechanisms. New York, Macmillan, 1947.
10. Robson, J. T. and Bonica, J. J.: Vagus nerve in surgical considerations of glossopharyngeal neuralgia. J. Neurosurg., 8: 482, 1950.
11. White, J. C. and Sweet, W. H.: Pain: Its mechanisms and neurosurgical control. Springfield, Charles C. Thomas, 1955.
12. Bonica, J. J.: Management of myofascial pain syndromes in general practice. J.A.M.A., 164: 732, 1957.
13. Bonica, J. J.: Management of intractable pain with analgesic blocks. J.A.M.A., 150: 1581, 1952.
14. Bonica, J. J.: The management of pain in malignant diseases with nerve blocks. Anesthesiol., 15: 134, 280 (Mar. & May), 1954.
15. Roedling, H. A., Roth, G. M., Osborn, J. E., Shick, R. M., and MacCarthy, C. S.: Paravertebral alcohol block of lumbar sympathetic nerves. J.A.M.A., 165: 799, 1957.
16. Moore, D. C.: Stellate ganglion block. Springfield, Charles C. Thomas, 1954.

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EDITORIALS

Monitoring In Anesthesia

"You may not succeed in perfection
but you must try."—Hillel

In anesthesiology, life and death are deeply involved. This implies that the anesthesiologist must be acquainted with the physical and mental status of the patient. He must understand the surgical requirements of the operation to be performed so that he can protect the patient from all painful and emotionally disturbing stimuli. He must prepare a relaxed field for the surgeon. He must guard the patient from harmful reflexes, support his respiration and circulation, return him to full consciousness and self-sufficiency as soon as possible after the operation.

What does he have to work with to accomplish all this? First of all, he needs time which he doesn't always have, to examine the patients chart the night before and also to see the patient. He knows that the drugs he uses disturb normal nervous balance, depress respiration, interfere with circulatory homeostasis, cause temporary deviations of hormonal balance, and metabolic activity. His equipment is a blood pressure cuff and stethescope, a watch, a few open-end controls to regulate the administration of the drugs. Generally the regulating devices do not have feed-back. They include needle-valves on the anesthesia machine which control flow of gases, ether vaporizer which cannot deliver vapor at a constant concentration, and an infusion drugs regulator. Considering the advanced development of the new tools in medicine this is not much.

He judges the adequacy of respiration by the movement of a rebreathing bag. The circulatory status by feeling and counting the pulse and measuring the blood pressure. The depth of anesthesia is judged by testing a few reflexes. Over 95 per cent of anesthesias administered this way are adequate. But there are occasionally serious consequences, a disaster or a near disaster such as a sudden unexpected failure of the circulation, and occasional hyperthermia resulting from dehydration, a sudden cessation of the heart beat, all at times detected too late. As an example is the case in which the origin of the heart beat may become grossly abnormal without it being at once detected by the palpating finger, and leading to cardiac arrest.

Devices to measure respiratory exchange, to continuously record the electrocardiogram and the electroencephalogram could certainly forewarn the anesthetist of impending disasters. There have been recent developments that can do just these things. Why is it that these recent developments have not been incorporated into routine practice? The obvious answer is that one or two persons that are electronic technicians thoroughly trained in the use and maintenance of the complicated automatic recording devices, are needed in the operating room in addition to the anesthesiologist. This is a matter of technical skill and finding the means to pay for it. The road to satisfactory monitoring has been blazed in open heart operations. It is not unusual for 8 or 10 physiological parameters to be monitored such as the blood pressure, total blood flow, O2 saturations, blood ph, CO2 concentrations, hematocrit, blood coagulability, hemolysis, the electrocardiogram, the electroencephalogram. Such observations, however, require an electronic technician, one or two persons in the operating room and two to three chemical technicians outside in a laboratory.

There are also disadvantages and dangers of excessive monitoring that we must bear in mind especially since monitoring devices are not fool proof, may not always be automatic or accurate and as yet, do not replace the all important value of the patients symptoms and signs.

Such challenges to ease the surgeons burden and save from disaster an occasional life exist in other areas of medicine but are especially compelling in the operating room. They are soluble, since monitoring devices are already available to continuously record all the parameters needed for the anesthesiologists to follow closely the patients during anesthesia. Without doubt more simplified automatic control systems and monitoring devices will appear and so will the clinicians who can use them. It will however require further investment of time and money. In the meanwhile all hail to the anesthesiologist to whose art and science this issue is dedicated. He may not achieve perfection but he is certainly trying.

L. H. N.

Electrical Anesthesia

The possible use of electrical currents for production of surgical anesthesia has been investigated for a number of years. It was determined at an early stage that anesthesia could be produced by such means but that brain damage, convulsions, and extreme arterial hypertension occurred so regularly that clinical application was not justified. Recently, however, it was found in both Russia and the United States that the adverse side-effects of electrical anesthesia could apparently be eliminated by utilization of currents with carefully selected characteristics. What is probably the most satisfactory technique depends upon the use of a single lead which can deliver both direct and alternating current in a rectangular wave of 1.0 to 1.4 milliseconds' duration 100 times per second using 40 volts and 40 or more milliamperes. Such currents have been employed not only in experimental animals but also in a very limited number of patients. Reports of its clinical use have recently appeared both in the medical literature and in the lay press. Such reports have engendered considerable interest and speculation amongst laymen and physicians.

Though the future role of electrical anesthesia remains in doubt, it is clear even at this time that it does not and cannot represent the long-sought "ideal" anesthetic. The necessary electrical equipment is both complex and expensive. More important, electrical anesthesia requires prior endotracheal intubation with conventional general anesthetics and artificial respiration to assure adequate ventilation during the anesthesia. Relaxation of skeletal muscles during electrical anesthesia is so poor that performance of abdominal surgery usually also requires simultaneous administration of intravenous muscle relaxants. Indeed, it is difficult to determine from published clinical reports how much of the success of electrical anesthesia can be ascribed to the electrical current and how much to the intravenous anesthetics and muscle relaxants. In any case, electrical anesthesia is not a simple, straightforward technique.

At the present time, electrical anesthesia should be regarded as a technique of major investigative value but of severely limited clinical use outside research centers.

REFERENCES

1. Knutson, R. C., Tichy, F. Y., and Reitman, J. H.: Use of electrical current as an anesthetic agent. Anesthesiology, 17: 815, 1956.

2. Anan'ev, M. G., Golubeva, I. W., Gurova, E. V., Kaschevskaia, L. A., Levitskaia, L. A., and Khudyi, Yu. B.: Preliminary data on experimental electronarcosis induced with apparatus of Scientific Research Institute of Experimental Surgical Apparatus and Instruments. Eksp. Khir., 4: 3, 1957 (translated in Anesthesiology, 21: 215, 1960).

3. Hardy, J. D., Fabian, L. W., and Turner, M. D.: Electrical anesthesia for major surgery. J.A.M.A., 175: 599, 1961.

4. Smith, R. H., Goodwin, C., Fowler, E., Smith, G. W., and Volpitto, P. P.: Electronarcosis produced by a combination of direct and alternating current. Anesthesiology, 22: 163, 1961.

5. Smith, W. R., Grambling, Z. W., Smith, and Volpitto, P. P.: Electronarcosis by combination of direct and alternating current of effects on dog brain as shown by E.E.G. and microscopic study. Anesthesiology, 22: 970, 1961.

N. M. Greene, M.D.

Biology Of Aging

The realization of one's ignorance is the beginning of one's wisdom—Socrates.

The consequence of senescence is the occurrence of death. Therefore any theory that could explain senescence adequately would be most attractive to the oldsters in our population as well as the young candidates for aging because it might suggest preventive therapy. It does seem a pity that after years of experience and developing wisdom, life should then be set aside and burden oncoming generations to learn things all over again, since death removes individuals with the most learning.

It is surprising that our knowledge underlying the biological process of aging has been so long delayed. It is not as if there have been no initial probings in this field during the early decades of this century; because a glance at the works of Loeb, Northrup, Carrell, Pearl and others show a deep interest in this problem. Fortunately there is an inevitability of scientific discovery so that when the time is ripe, scientific discovery springs up in many areas, as a result of accumulated thinking, advancing methodology, and recognition of the need of problem solution. The enormous extent of sociologic economic psychological, and medical problems that have come with increasing age of our population is exerting increasing pressure to explore the biology of aging and we needn't be deterred by Handler's dictum that "Mortality is a bilt-in penalty for multicellular existence."

All problems require not only precise statements of them but precise definitions of the terms used. Aging can be defined effectively as the progressive loss of functional capacity of an organism after it has reached productive maturity, and perhaps really commences with the onset of differentiation.[1] Although the mechanisms of aging are probably different in plants, micro-organisms and vertebrates, they are basically similar in all organisms with similar physiological mechanisms.

The survivorship curve for man shows a relatively low mortality until nearly the age of retirement and then a rapid decline. Therefore, we can safely assume that there are some internal biological mechanisms which bring about a decline in viability and increase in vulnerability in such populations. In animal species there is a reasonable amount of evidence that as they grow older they may be running out of the metabolic and developmental functions associated with youth. Strehler and Mildvan[3] from statistical evidence suggest that senescence may have such a physiological basis because they show a progressive decline in many hormonal, enzymatic and physiological functions in animals that lead to an increase in their vulnerability. Many physiological variables show a definite decrease with age. Sinex[1] points out there is a decrease in maximum breathing capacity. There is a decrease in renal plasma flow, there is a decrease in the integration of complex mental skills, and there is a decrease in the speed of voluntary responses and there is an increase in vulnerability to certain infections. It is as if there had been a loss of tissue substance, a loss of immunologic mechanisms, as well as a reduction in efficiency of the remaining cells.

There is much evidence that a senescent individual has lost cells in almost every organ. In certain areas of the brain there is a decrease of total number of viable cells amounting to 25 to 30 per cent and this is associated with a decrease in the total amount of brain tissue. The well known decrease in muscle strength, besides impairment of innervation, may result from a decrease in the amount of functioning mass of muscle, the disappearing muscle being replaced by connective tissue and fat. This is true not only in skeletal muscle but in smooth muscle and cardiac muscle as well. The decrement in renal function can be attributed to a loss of functioning nephrons. There appears to be a distinct relationship between the numbers of functioning units and functioning renal capacity.

There appears to be important changes in enzymatic activity which can be attributed to a decrease in the number of intracellular elements. Barrows, Falzone and Shock found a decrease in succinooxidase, which seems to be related to the number of mitochondria per cell. Hydroxbutyrate metabolism by liver and kidney mitochondria decreases with age. Catheptic activity of liver increases markedly with age and of course greying with age is due to loss of tyrosinase activity of the melanocyte. In other words there is a growing appreciation now of the necessity to correlate morphological changes in the total cell population and morphological changes within the cell itself with observed levels of its enzymatic activity.

When it comes to connective tissue there is a considerable difference between that of young and old animals not only in the number of cells which increase as they replace lost cells, but also within the cells during aging and especially in the chemical changes that take place within the extracellular phase. Mucopolysaccharides gradually accumulate with age in cartilage, nucleus pulposus and other tissues. Collagen becomes tougher, more crystalline and more difficult to dissolve. Elastin in human blood vessels loses elasticity, fragments, becomes pigmented and as a result the arterial wall developes calcification. The ground substance increases in density and aggregation, a condition that could raise a barrier to the transfer of substances from blood to cells and thereby gradually affect the nutrition of the cells. When this is combined with decreased vascularization through arteriocapillary fibrosis, we have a probable potent force in decreasing the nutrition of the remaining cells. Thus changes in the reserve supply of blood and in distribution of blood to the tissues can seriously affect the life and viability of all tissues by setting up barriers between capillaries and cells.

Many of the changes that accompany aging occur in the nucleus. Abnormal nuclei and abnormal cell division can be seen in senescent animals. Adult tissue as contrasted with young tissue, seems to experience difficulty in initiating the first mitotic events in tissue culture or after stimulation. It is possible that the postmitotic cells cannot replace properly all the proteins and enzymes necessary for normal function or some irreplaceable macro molecules are not synthesized at all or when synthesized may be altered chemically and be subject to deleterious chemical changes. Elastin is a good example of an extra cellular protein less crystalline than collagen, which does not have added protection of extensive hydrogen bonding, and when fractured, can lead to a series of degenerative changes in the walls of blood vessels which in turn affect adequate blood supply to other cells.

Developing pigmentation is found in a number of tissues both intracellularly and extracellularly which exhibit a blue or yellow fluorescence. These pigments are believed to result from autooxidation of lipid and are found in heart muscle, neurones, atheromatous plaques and elastin. A theory holds that the autooxidation is due to a destruction of antioxidants. Carbonyl compounds form, aldehydes appear which condense and polymerize. What functional impairment results from such accumulated pigments is not evaluated as yet; but they are present up to three per cent in heart muscle in the lipids of the intima of arteries, may be accelerated in their accumulation by vitamin E deficiency acetanilid poisoning and stress. It is significant that in plants also expressions of senescence are found in morphological and pigmentational changes such as loss of green color and development of yellow or red colors.

A first rate experimental device to study senescence is the use of ionizing radiation. This element produces many changes analogous to those observed during aging. It decreases life expectancy, since after radiation the observed death rate corresponds to the death rates of older age groups. There is also a decrease in the number of viable cells in many tissues. The cells are replaced by elements of connective tissue just as occurs in normal aging. Nevertheless, the injury sustained by ionizing radiation is not identical to aging in all respects.

It is presumed by many that aging serves a useful purpose from the evolutionary point of view. It is argued by many that senescence is a deliberate event consisting of differentiation to a point where the interdependence of cells and tissues is incompatible with the indefinite life of the total organism. In this view death contributes to the survival of the species by insuring a progression of generations, and consequently offers a chance for evolutionary changes to even higher forms. At the same time it reduces competition for food supply.

A second view holds that aging arises from random somatic mutations. The chances of mutation of DNA—the genic material—would be very small because this molecule with its hydrogen bonded helix has great stability. Not so, however are other proteins in the body which are not so stable. Greying hair would be an example of a somatic mutation of an aging melanocyte. Whether aging animals develop an impairment of "self recognition" and thus in antigen—antibody formation to their own tissues is quite unknown as yet. Whatever the philosophic view of aging that is held, a study of autooxidation in senescent tissue might uncover its mechanism and then it could suggest preventive therapy if specific antioxidants could be evolved. We need not worry that non-senescence would retard evolutionary change since in a non-senescing population the older components would constitute an ever decreasing part of the reproductive source so that their contribution to the over all progeny would be nil. Whether death is good or bad is not known because we are still unable to adequately furnish the answer to the classic question posed by St. Paul to the Corinthians almost 2,000 years ago.

"Oh Death Where is Thy Sting."

L.H.N.

REFERENCES

1. Sinex, F. M.: Biochemistry of aging. Science, 134: 140, 2 November 3, 1961.

2. Medawar, P. B.: The uniqueness of the individual. Basic Books, New York, 1957.

3. Strehler, B. L. and Mildvan, A. S.: Science, 132: 14, 1960.

4. Leopold, A. C.: Senescence in plant development. Science, 134: 1727, December 1, 1961.

5. Comfort, A.: The biology of senescence. Rinehart, New York, 1956.

YOU'LL HEAR ABOUT . . .

Reconstructive Surgery in Renal Hypertension

at the

ANNUAL MEETING

of the

CONNECTICUT STATE MEDICAL SOCIETY

May 3, 4, 1962

Statler-Hilton Hotel, Hartford

THE PRESIDENT'S PAGE

In last month's "President's Page" I had occasion to make reference to the experience the Kerr-Mills Program was encountering in West Virginia, where it was reported the plan was running into financial difficulty. Since that time, through the good offices of the Executive Secretary of the West Virginia State Medical Association, Mr. William H. Lively, I have received a most interesting and detailed report of their experience. The alleged "crisis" in the operation of the State's M.A.A. Act which was the first one to go into effect in October 1960, indicates that a deliberate attempt was made to discredit Kerr-Mills Legislation in West Virginia, with the ulterior objective being the passage of social security tax financed medical care legislation. It is now known that the so called financial emergency proved to be exaggerated and West Virginia has $4,380,000 to operate its aged care program from July 1962 to July 1963.

There are a number of lessons to be learned from the West Virginia experience by doctors, hospitals, pharmacists and other vendors of medical care under government assisted programs. The Commissioner of Welfare for West Virginia, a Mr. C. Bernard Smith, on November 28, 1961, issued a directive to be effective on December 1, 1961, approximately four days later. This directive was issued without prior consultation with any representatives of the vendors of medical care and ordered that payments to hospitals henceforth would be limited to maximum $20 per day and the payment to physicians would be reduced to the public assistance fee schedule level wherein $40.50 was a maxium surgical benefit in contrast to $187.50 in the pre-existing fee schedule. Home and office calls were similarly reduced. Doctors were asked to sign contracts and were told if they did not sign that they could expect to be excluded from any government financed health assistance program, in addition to their exclusion from Kerr-Mills Program. The contract stated in effect, that physicians and other providers of medical service must accept any fees that the State Commissioner of Welfare might see fit to establish as complete compensation for their services. To their everlasting credit the physicians of West Virginia refused to sign such contracts and when it was demonstrated that the financial solvency of M.A.A. had been misrepresented, the pre-existing fee schedule was restored. Until the publicity on West Virginia's Program became nationwide, the Medical Society of West Virginia had petitioned in vain for joint district review committees to be established to examine vouchers submitted and settle any local disputes; further, repeated requests to establish a joint conference committee to meet at monthly intervals to make periodic evaluations and formulate modifications in the Kerr-Mills program had been ignored. Now such committees are in operation.

It was proved in testimony before the legislature that employees of the West Virginia Department of Welfare actually went out and solicited persons to utilize the Kerr-Mills Program. This solicitation took place during a political campaign for the governorship and some 30,000 applications were taken whereas 18,000 were eligible under the program. West Virginia had the most liberal M.A.A. eligibility criteria among all the States and these criteria were under the control of the Commissioner of Welfare and were not established by statute. The Commissioner of Welfare in an amazing bit of inconsistency testified that although he favored Federal Medicine "in many instances, I do not feel that policies set away from the State, can be as effective as those set in a State."

Doctors everywhere should be convinced that whenever the government puts up money for these programs, there is considerable risk of the government passing arbitrary rules. The use of Kerr-Mills benefits as a lure during a political campaign, reemphasizes what Medicine's spokesmen have repeatedly stated "the quality of medical care will not be the same if politicians separate the patient and his doctor.'"

Thomas M. Feeney, m.d.

FROM THE GENERAL MANAGER'S OFFICE

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CALL
ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1962 Annual Meeting of the House of Delegates will be held at the Statler-Hilton Hotel, Hartford, commencing at 10:00 o'clock in the morning of Wednesday, May 2.

Following luncheon, the House will reconvene for the completion of business.

Thomas M. Feeney, President
Orvan W. Hess, Secretary
William R. Richards, General Manager

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that: (New Bylaws which go into effect at 8:00 A.M. on May 2, 1962)

All resolutions to be considered as regular business at any regular meeting of the House of Delegates must be in the hands of the Speaker not later than seventy-two hours before the opening of that meeting. All resolutions and recommendations published in the official agenda distributed to the members of the House prior to the meeting at which action is to be taken shall be considered as regular business. Resolutions presented later than seventy-two hours before the opening of a meeting will be referred for consideration as regular business by the House only when they are presented by the Council or accepted for consideration by majority vote of the delegates present. Any resolution which does not qualify in accordance with the aforesaid provisions for consideration as regular business may be accepted for action by a majority vote of the delegates present and, if so accepted, shall be referred at once by the Speaker to a reference committee. Any such reference committee shall consider resolutions referred to it and shall report, with recommendations, to the House before adjournment of the meeting.

The M.D.'s Responsibility To His State Meeting

(*The following commentary is offered by the Medical Society Executives Association. To many, it will undoubtedly make good sense.*)

Peculiar things are happening in "the house of medicine" today. Bureaucrats in Washington are using IBM techniques to determine what John Jones, M.D. in Spotted Horse can charge for every service he renders patients served, where government funds are wholly or partially employed. Hospitals in many areas are assuming the role of community physician and creating a public image that the fount of medical knowledge and authority rests on Hill-Burton foundations rather than in the office of the individual family physician. And with this ominous change in the structure of medical practice comes an equal and disturbing decline in the role of the county society and the state medical meeting in the important area of postgraduate medical education.

Why is this so, and need it continue to a point where the county society and the state medical meeting join the dodo and the carrier pigeon in oblivion?

At the turn of the century the county medical society was the "doctors' fraternity," and the annual state meeting was an occasion eagerly anticipated as a source of professional knowledge and an opportunity to discuss cases and professional problems with former teachers and colleagues in other cities. Those were the days when professional exchange of experience and avid attendance at lectures provided the best avenue for continued medical education. Medical movies were rarely available, TV wasn't even imagined outside of a few imaginative science writers of the Jules Verne type, and even access to literature was generally confined to the larger communities and those few high and mighty "giants" of the profession who were specialists in the art of surgery.

What a change today! The busy practitioner of 1962 is bombarded with literature; he is swamped with elaborate brochures on a multiplicity of medications and professional aids; he is interrupted in the care of patients by earnest and persistent detail men; his hospital staff demands his presence at frequent meetings; his specialty group or GP unit seeks his attendance at scientific meetings (with bait of credit, or threat of expulsion!) . . . in short, the physician of today is either a nomad from his practice, or he throws up his hands and eliminates all meetings other than three or four each year.

In such a situation many state medical meetings are finding themselves among the "also rans." They can provide little of the glamour or overwhelming program offerings of an A.M.A. meeting. Nor can they successfully compete with the social pull of the resort conferences (with a chance for a bit of gambling and night-clubbing within the prescribed rules of the Internal Revenue Department!)

And yet, a state medical meeting has something of *special* value to the practitioner which is worth preserving. But it cannot survive if an increasing number of physicians by-pass it and restrict their attendance to regional or national meetings of their specialty or area of general practice.

A state meeting . . . YOUR state meeting . . . is the finest "grass roots" medical meeting which can be developed. It's big enough to provide a stimulating program with out-of-state speakers, and to encourage the development and presentation of good scientific exhibits from local hospital staffs or clinic groups. At the same time it's small enough to provide renewed fellowship with former classmates and faculty members to a degree which is lacking in any national or even regional conference.

Why then, is the average state meeting suffering a severe case of attendance malnutrition? In some instances poor program planning may be the answer. Sometimes there is a lack of imagination in providing new modes of presentation. An attractive program is an important part of a modern-day medical convention, and the program committee which fails to plan wisely is issuing a blanket invitation to stay away from the meeting itself.

Even the technical exhibits at a well-run medical meeting have educational benefits to be considered. True, a certain proportion of physicians regard the technical exhibits as "commercialization" of the scientific program, and hesitate to taint themselves by stopping at any of the booths. However, there are many more physicians from smaller communities or in rural practice who welcome the opportunity to see what new drugs and appliances are being offered, without the pressure of a full waiting room of patients.

No medical meeting exhibit should be continued solely on the basis of financial support of the scientific program itself. No one should ask the physician to "sell his soul", just to support a commercial exhibit. The day of the "hard sell" among exhibitors at medical meetings is a thing of the past. A few companies still emphasize direct sales at medical conferences, and their representatives are a bit on the overeager side. But most of the ethical houses conduct their physician contacts in keeping with the professional standards of those in attendance.

The educational aspects of the modern-day medical exhibit should not be overlooked or derided by the purist MD who scornfully brands all displays as "technical prostitution." He is possibly unaware of the fact that most of the scientific exhibits he admires and studies are largely supported by funds from the commercial houses. He accepts the lectures and demonstrations on the scientific program itself with little recognition that without exhibit support he would be asked to pay a registration fee of $25 to $50.

Those who view medical meetings, from the hospital staff level right up to the summer meeting of the A.M.A., are concerned that in some areas physicians are failing to appreciate the importance and unique qualities of their state meeting. By their failure to actively support their meeting on a state level they are threatening the demise of a meeting which has much to offer in terms of close professional fellowship and keeping the quality of medical practice in the immediate area alert to new developments as they relate to individual practice.

The public is prone to criticize the medical profession for its alleged major concern with the financial returns of their practice. Attendance at medical meetings represents a loss of income which is often overlooked by patients. It is important that annually your patients either read this legend on your office door: "To My Patients: I am Attending My State Medical Meeting so I Can Better Serve You. Please call Doctor ———— in My Absence," or your office girl should be asked to explain your absence in a similar manner.

Your state meeting is worthy of your support . . . and it can only remain a vital factor in the life of your state if you attend and take an active role in all aspects of the meeting.

COUNCIL MEETING

Thursday, February 15, 1962

Because of a heavy snowstorm and a breakdown in emergency communications between the Chairman and the General Manager, it remained uncertain until after 3:00 P.M. whether this scheduled meeting of the Council would be held. However, at

3:30 P.M. it was determined that a quorum was present and the Chairman, Dr. Gilman, called the meeting to order, with the understanding that items on the agenda would be acted upon only if agreed to by those present.

Present, in addition to the Chairman, were: Drs. Deming, Hess, O'Connor, Caplan, Gardner, Bradley, Grant, Murray, Purnell, and Davis. Also present: Dr. Richards. Absent were: Drs. Feeney, Goldberg, Cullen, Scully, Wilson, Ogden, Cornwell, Katzin, Rentsch, Gorman, Martin, Gevalt, Egan, Phillips, Hastings and Chartier.

APPROVAL OF MINUTES. It was VOTED to approve the minutes of the Council meeting of January 17, 1962, as printed.

EXEMPTION FROM DUES.

a) It was VOTED to rescind the action of January 17th exempting William F. Burke, Newtown, from payment of 1962 dues on the basis that Dr. Burke has returned to practice.

b) It was VOTED to postpone action on the request of Vernon E. Thomas, Jackson Heights, N.Y., to be exempted from payment of 1962 dues a/c postgraduate education, pending further information concerning the expected date on which he will complete his training. Oliver J. Purnell, Councilor from Tolland County, is asked to obtain this information.

RESOLUTION FROM NEW HAVEN COUNTY MEDICAL ASSOCIATION. A Resolution, concerning Welfare Department payment schedules, adopted by the Board of Governors of the New Haven County Association on January 25, 1962, was presented. It was VOTED to postpone consideration of this Resolution until a larger number of Council members can be present.

NOMINATION TO THE BOARD OF EXAMINERS FOR PHYSICAL THERAPISTS. It was VOTED to recommend to the Governor for reappointment to a five year term as a member of this Board the name of Thomas F. Hines, Wallingford, whose term expires on July 1, 1962.

COMMITTEE ON POSTGRADUATE EDUCATION. At the request of Arthur Ebbert, Chairman, it was VOTED to grant the Committee an operating budget of $200 for the year 1962. Dr. Ebbert states that his Committee now meets to consider a number of matters unrelated to the Clinical Congress, and it is his feeling that these unrelated activities should not be financed out of Clinical Congress funds.

COMMITTEE ON MENTAL HEALTH. On recommendation of the Chairman of this Committee, John Donnelly, it was VOTED to appoint William Lee, New Britain, a member of the Committee to replace Phillip J. Moorad, New Britain, who is unable to serve. Dr. Lee's term will expire in 1963.

REPORT OF INVESTMENT COMMITTEE. Since the Treasurer, Isadore A. Goldberg, was not present at this meeting, it was agreed to ask Dr. Goldberg to make his report at the next Council meeting.

GOVERNOR'S COMMITTEE ON HOSPITAL PLANNING. Clyde L. Deming, New Haven, filed a report on his attendance at a Conference of the Governor's Committee on Hospital Planning, held at the Yale School of Medicine on December 29, 1961. Dr. Deming attended as a guest of the Governor's Committee. He reported that the Committee had voted:

1) To recommend to the Governor the development of a Connecticut State Hospital Planning Committee, supplementary to the Connecticut State Department of Health, to give voluntary advice on a high level of efficiency on hospital planning.

2) To recommend to the Governor that this voluntary agency be integrated with government action, and that the Committee be composed of about twenty members, regardless of political affiliation, all highly educated individuals broadly representing state agencies, Departments of Health and Welfare, voluntary institutions, general hospitals, nursing, medicine, labor unions, church groups, etc. The Committee members would serve without compensation, but would select a salaried staff.

3) To inform the Governor that the funds needed for the first year of operation are estimated at $75,000. By solicitation, the source of the funds would be places now having active hospital planning committees, foundations, Blue Cross, Blue Shield, commercial insurance carriers, industry, labor, the Connecticut Hospital Association, the Connecticut State Medical Society, medical auxiliaries, etc. It was especially recommended that no disproportionate sum should come from any one source, in order to prevent "power pressures".

Dr. Deming also noted that the Committee had voted to proceed with this program of Hospital Planning without delay. It was VOTED to accept Dr. Deming's report.

It was then VOTED to direct the General Manager to communicate with the Chairman of the Governor's Committee, Albert W. Snoke, M.D., for the purpose of obtaining more specific information as to how it was proposed this Hospital Planning Committee would operate, how the Committee of twenty would be chosen, etc. It was further VOTED to notify the Society's Committee on Hospitals of this proposal and to request the committee to familiarize itself with the broad aspects of hospital planning throughout the country.

REPORT ON SECOND "FOUR AGENCY" CONFERENCE. The Chairman and the General Manager reported on this Conference and informed the Council that all agencies were in agreement that the private insurance carriers should be invited to participate as a fifth agency, specifically through the Connecticut Branch of the Health Insurance Council. The Society's representatives also reported that the other agencies present seemed not to understand (and appeared not interested in) the Council's proposal to jointly hold a Conference on Medical Care, Health Insurance and Prepayment Plans. In view of this negative reaction to the proposal by the other agencies, the Council did not recommend that it be pursued further by the Society at this time.

CONNECTICUT MEDICAL SERVICE.

a) It was VOTED to postpone action on the request of the CMS President, Mr. John Coolidge, that his article titled: "An Amendment to the Preferred Contract" be published in the March issue of CONNECTICUT MEDICINE, and to defer consideration of this request to a larger and more representative meeting of the Council.

b) It was VOTED to accept the report of the Chairman on the February 1, 1962, joint meeting of the CMS and CSMS Liaison Committees. Dr. Gilman informed the Council members that the Council component of the liaison group had advised the CMS representatives against a proposed four-year term of office for directors; had jointly nominated members and chairmen of the MAC; had presented the Council's advice and suggestions about amendments to the Preferred Contract; and had discussed several other matters of mutual interest.

c) It was VOTED to postpone consideration of the proposed Amendment to the Preferred Contract, approved by the Board of Directors, and to defer action on this amendment to a larger and more representative meeting of the Council. At the request of William J. Murray, Jr., New London, it was VOTED to invite all physician members of the CMS Board of Directors to join the Council at the Council meeting at which the Amendment to the Preferred Contract is considered.

d) Having been informed by CMS that Arnold Janzen, Hartford, the joint nominee to the CMS Medical Advisory Committee in Radiology has declined the nomination, it was VOTED to nominate Joseph J. Connolly, Stamford, in Dr. Janzen's place. It is understood that Dr. Connolly's nomination is agreeable to the CMS Board.

ADVISORY COMMITTEE TO COMMISSIONER OF FINANCE AND CONTROL. In a letter addressed to Dr. Feeney, dated February 2, 1962, the Chairman of this Committee, Edwin F. Trautman, requested guidance in certain matters relating to the development of a payment schedule for physicians' services under Public Act No. 578, the Connecticut Medical Assistance to the Aged Program (Kerr-Mills). Stating that a number of questions had been raised during the Advisory Committee's consultations with Commissioner Conkling and with groups of physicians in various types of practice, Dr. Trautman asked that he and his committee be given guidance in these matters. Dr. Feeney asked that the Council offer such direction as it deems advisable. It was VOTED to direct the Committee to advise the Commissioner of Finance and Control as follows:

1) That P.A. No. 578 does not call for any agreement with, or approval of, the Connecticut State Medical Society with respect to a payment schedule for physicians' services which may be promulgated by the Commissioner under that Act.

2) That the Advisory Committee recommends to the Commissioner the formulation of a schedule for physicians' services which will cover as many such services normally required by the aged as possible.

3) That the Advisory Committee recommends to the Commissioner that the most liberal payments for physicians' services be made within the limits of the budget, it being understood that, at best, the schedule will undoubtedly offer generally substandard fees to physicians and that physician participation will be on a voluntary, individual basis. The Advisory Committee recommends no specific payments (in dollars).

4) That the Advisory Committee recommends to the Commissioner that a truly voluntary approach to the program be made by omitting the customary "I agree to charge no more . . . under threat of prosecution" release which physicians must sign before payment will be made under most programs of this nature. The amount of dollars to be paid for each service will be determined by the Commissioner; the acceptance of that amount as "payment in full" of his fee should be determined by the individual physician, even if this requires that the payment be made to the patient rather than directly to the doctor.

COMMITTEE ON PUBLIC HEALTH

a) It was VOTED to adopt the following Resolution, essentially as recommended by the Committee on Public Health:

WHEREAS: In August, 1961, the Surgeon General of the U.S. Public Health Service predicted the probability of an Influenza epidemic, Type A and/or B, occurring in the Spring of 1962, and

WHEREAS: The supply of Influenza vaccine available to the practicing physician has been distressingly small and totally inadequate to meet immunization needs, therefore be it

RESOLVED: That the Council of the Connecticut State Medical Society urge the Surgeon General of the U.S. Public Health Service to establish closer liaison between the USPHS and the manufacturers of biologicals in order that manufacturers may be alerted to anticipated increased demands for vaccines, and be it further

RESOLVED: That the Council of the Connecticut State Medical Society urge the Surgeon General of the U.S. Public Health Service to establish standby plans for assisting practicing physicians and local health departments in anticipating and ameliorating the effects of predicted epidemics, before such predictions are made public by the USPHS.

b) It was further VOTED to publish in CONNECTICUT MEDICINE the following statement of the Committee on Public Health: "While Influenza vaccine is in short supply, it is recommended that vaccine be given only to certain selected groups; i.e., those over 65 years of age, the chronically ill and pregnant women."

COMMITTEE ON NATIONAL LEGISLATION. It was VOTED to approve the plan of this Committee to hold a buffet supper and legislative conference for state, county and local medical society officers and their wives, and representatives of state and county woman's auxiliaries and their husbands, at the Colonial House in Hamden on the evening of March 13, 1962. It was further VOTED to authorize the Committee to expend approximately $250 out of its 1962 budget for this purpose, and to request the Committee to seek allotment of additional operating funds when and if needed.

CONNECTICUT PHYSICIANS' ART ASSOCIATION. It was VOTED to decline an invitation from this agency to make the Art Exhibit an integral part of the Annual Meeting of the Society. It was further VOTED to inform the Art Association of the Council's willingness to have the art exhibit continue as an adjunct of the Annual Meeting and to provide exhibit facilities as in past recent years, and of the Council's authorization for a flat cash payment of $50 to be made annually out of Annual Meeting funds upon written request by the official liaison representative of the Art Association to the Society.

EXEMPTION FROM DUES. It was VOTED to table action on the request of Kurt F. Schmidt, New Haven, that he be exempted from payment of annual dues, pending further study of his situation by the Councilor from the New Haven County Medical Association.

ELECTION OF STUDENT MEMBER. It was VOTED to elect to student membership the following: Janis Ann Glickstein, 10 Fox Road, West Hartford, Johns Hopkins—Class of 1965. Pre Med: Smith College. Parent: Louis S. Glickstein.

COMMITTEE ON RELATIVE VALUE STUDY. It was VOTED to direct the Chairman of this Committee to proceed to conduct the Relative Value Study as proposed, providing that the provisions outlined in his report are included in specific terms in a written agreement with the professional firm which will receive and analyze the returned questionnaires.

DATE OF NEXT MEETING. It was agreed that the date for the next meeting shall be Wednesday, March 14, 1962.

Killed Virus Vaccine Prevents Measles

A killed virus vaccine has proved effective in preventing measles without causing fever and other symptoms of the disease associated with live measles virus vaccine, it was reported today in the current Journal of the American Medical Association.

The effectiveness of the killed virus vaccine among more than 300 children given a series of three injections was estimated at up to 96 per cent. The effectivness was determined on the basis of protection afforded against contact with actual cases of measles.

The only side effects were soreness and redness in the area of the injection which occurred in a small per cent.

There now appears to be at least two approaches to the goal of how best to prevent measles, a source of worldwide sickness among children and many adults, a Journal editorial said. Before this goal can be reached, it said, further studies of the killed vaccine are necessary to establish the duration of its protection and further studies of the live vaccine are needed to determine whether it can be modified to eliminate side effects.

The killed vaccine was first shown to be worthwhile in a pilot study involving 61 children and two adults in 22 families in Syracuse, N.Y., in late 1960, according to a Journal article by Harry A. Feldman, M.D., and Alvin Novack, M.D., State University of New York, Upstate Medical Center, Syracuse, and Joel Warren, Ph.D., Chas. Pfizer & Co., Inc., Terre Haute, Ind., the developer of the vaccine.

In this initial study, the vaccine—given in three doses at monthly intervals—provided protection against measles in 72 per cent, the researchers said. However, they said, a more potent lot of the vaccine currently is under investigation in a larger study with an "almost total" favorable response recorded so far.

In addition to the fact that it does not produce unfavorable reactions, the killed vaccine also is exceedingly stable, retaining its strength for a long period, and may be given in the same injection with other vaccines, such as polio vaccine or diptheria-whooping cough-tetanus vaccine, they said.

CONNECTICUT'S MEDICAL AID TO THE AGED PROGRAM

(Public Act No. 578)

On April 15th, the state's MAA (Kerr-Mills) Program will become effective, and those residents of Connecticut over age 65 who are eligible will be able to obtain needed financial assistance in meeting their larger medical care costs. In a Memorandum from the State Department of Welfare, dated February 1, 1962, every licensed doctor of medicine in Connecticut was apprised of the program's effective date, the conditions of eligibility for assistance, and the provision for payment to be made to physicians for services rendered to eligible persons both in and outside of the hospital. Each physician should review this information carefully, in order that he may work cooperatively with the Welfare Department, advise those of his patients who he believes require financial help, and be familiar with the payment schedule especially as it applies to patients hospitalized in the institutions where he has admission privileges.

At this writing, no specifics of the payment schedule have been received at this office. However, as so well stated by Dr. Feeney in his President's message in the March issue of Connecticut Medicine, members of the Society must expect that to stay within the limits of budgetary appropriations, the Commissioner of Finance and Control will undoubtedly be required to "promulgate" a schedule calling for dollar payments which are moderately to markedly substandard in relation to normal, reasonable fees.

Through their established medical organizations, the majority of American physicians have reaffirmed over and over again their desire "to help those who need help" without anyone being subjected to stringent federal controls, and certainly the intent of the MAA Program is to make this possible. It is as an individual, however, that each doctor must make a determined personal effort to keep in mind the worthy objectives of this plan, and participate in it voluntarily to the fullest degree consistent with his own ethical standards, the welfare of his patients, and the highest quality of professional care.

W.R.R.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Stafford W. Gedge, Age 32—M.D., Albany Medical College 1955. Specialty Internal Medicine, associate with another internist or small group.

Sheldon Spielman, Age 30—M.D., New York University 1956. Specialty Obstetrics-Gynecology.

Karl E. Nicolai, Age 31—M.D., Hahemann Medical College of Philadelphia 1957. Specialty Obstetrics-Gynecology.

Leonard Kritzer, Age 31—M.D., Ohio State University. Specialty Obstetrics-Gynecology.

Plastic Surgeon, completing training in June, desires to locate with group or association in plastic surgery. Excellent university training.

Wanted Locum Tenens for August 1962. Full time Assistant Professor at Northeast Medical School, Board Qualified in Internal Medicine, available for General or Internal Medical practice. Please indicate procedure for obtaining temporary hospital privileges.

PLACEMENT OPPORTUNITIES

Wanted General Practitioner in Clinton area.

Wanted Resident physician in New Fairfield.

Wanted young physician for practicing geriatrics, full time hospital employment. Also opportunity for research work.

ANY ONE INTERESTED IN THE ABOVE, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

1962 MEETINGS

April 11—Symposium on The Newborn Infant, to be held at the Hospital of St. Raphael, New Haven.

May 2-3-4—Annual Meeting Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

May 3-4—New England Health Education Association — Spring meeting — Andover Inn, Andover, Mass.

May 18-19 — Connecticut Society American Board Obstetricians and Gynecologists Travel Club meeting in Montreal.

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

The Opinion Survey Report

Beginning with the February issue of Connecticut Medicine, *a series of three articles based on the Opinion Survey Report is being published for the information of all members of the Society and others who read the Journal. The abstracts have been prepared by the members of the Council's Subcommittee on Opinion Survey (and the General Manager) with the intent of transposing the somewhat formidable array of numerical statistics and interview records contained in the 158-page Report into briefer, interesting and readable presentations of the results and conclusions.*

OPINION SURVEY ABSTRACTS

Fields 62 through 69

Prepared by

Denis S. O'Connor, New Haven

Field 62

Payment Schedules For The Services Of Doctors Of Medicine

SURVEY QUESTIONS:

1. **From your own experience, do you consider the amount of money paid to you for your services under the payment schedules of private insurance companies is reasonable and is generally satisfactory to you?**
2. **From your own experience, do you consider the amount of money paid to you for your services under the payment schedules of CMS, Inc. is reasonable and is satisfactory to you?**

Of those responding, 38 per cent of private practitioners consider the amount of money paid to them under the payment schedules of insurance companies "reasonable and generally satisfactory," while a somewhat larger 55 per cent do *not.* In much the same ratio, 43 per cent of practitioners feel that CMS, Inc. payments are more or less adequate but 52 per cent are not *satisfied* with them.

Keeping in mind that, from the outset, CMS has been largely a surgically-oriented plan, it is perhaps not surprising that one can deduce from the personal interviews that, in general, the non-surgical practitioner is less likely to consider CMS payments "reasonable" than his surgeon colleagues. As one G.P. put it: "For non-surgical men, neither CMS nor most other insurance policies are satisfactory." But those in surgery, particularly in special branches, are by no means satisfied with present-day insurance and Blue Shield payments. An Ear, Nose and Throat man calls all of them "completely unsatisfactory," an Obs.-Gyn. specialist categorizes some of them as "too low for an obstetrician to live on," an Orthopedist feels that many insuring agencies "sell gimmicks rather than sound coverage," and an Ophthalmologist says most payments in his field are "entirely inadequate." Also, in apparent disagreement with many medical men that CMS gives surgeons a lion's share of the Plan's funds, is the opinion of one general surgeon who states: "For some minor things . . .

CMS pays too much, but for most major operations they're too low." And another who feels that "Payments under private insurance are usually just as unsatisfactory as under CMS."

Among the roughly 40 per cent of those holding the opinion that payment schedules are reasonable and/or satisfactory, typical explanations are as follows: ". . . I now get 95 to 98 per cent payment for my services. I used to get 60 per cent"; ". . . with CMS, I find relatively little to squawk about as a surgeon"; "My fees are much the same as those paid by CMS."

And to demonstrate that it *is* a difference of opinion which makes horse racing possible:

A Pediatrician: "Private insurance payments are better for us than those of CMS, Inc."

An Industrial Physician: "CMS schedules are generally more satisfactory than those of private companies . . ."

It should be noted that in Survey Question No. 2 of this section, no mention was made of "Service Benefits," which are a peculiar feature of CMS, Inc. Indemnity payments under CMS are identical with Service Benefits (reduced fee) payments, whereas practically all reimbursements under private insurance plans are strictly on an indemnity basis. Since, in the personal interviews, no distinction seemed to be drawn by most dissatisfied respondents between the inadequacy of payments under either plan, one might be justified in concluding that the majority thinks some private carriers, having no "full-pay" feature at all, are actually providing less dollar coverage than CMS, Inc.

Fields 63 and 64

Changes Which In Doctors' Opinions Would Make The Payment Schedules Of Insurance Companies and CMS More Reasonable and Generally Satisfactory To Them

SURVEY QUESTIONS:

1. **In your opinion, and speaking in general rather than specific terms, which of the possible changes in the payment schedules of private insurance companies might make the amounts of money paid to you for your services more reasonable and satisfactory to you?**
    - **a) A percentage increase in the dollar payments for all covered services?**
    - **b) A revision of the payment schedules possibly using a relative value scale to properly relate each covered service with all other covered services?**
    - **c) Both a percentage increase and a revision of the payment schedules?**
    - **d) No change necessary?**
    - **e) No opinion?**
2. **Judging these same possible changes in relation to the payment schedules of CMS which of the following might make the amounts of money paid to you for your services more reasonable and satisfactory?**
    - **a) A percentage increase in the dollar payments for all covered services?**
    - **b) A revision of the payment schedules possibly using a relative value scale to properly relate each covered service with all other covered services?**
    - **c) Both a percentage increase and a revision of the payment schedules?**
    - **d) No change necessary?**
    - **e) No opinion?**

45 per cent of private practitioner replies, both in relation to insurance companies and CMS, favored "revision of the payment schedules, possibly using a relative value scale." 36 per cent favored both a percentage increase and a revision of the payment schedules for insurance companies and 37 per cent favored this change for CMS. 11 per cent favored a percentage increase in the dollar payments for all covered services for both insurance companies and CMS.

While there was no clear majority for any one plan, the acceptance by such a large minority for the relative value approach is significant and would furnish sufficient support for the State Medical Society to proceed with the contemplated relative value study.

Comments by those interviewed again stress the dissatisfaction of internists, pediatricians, dermatologists, nose and throat men and general practitioners with payments for their services in comparison with the payments made to surgeons.

Field 65

Adoption Of A Relative Value Scale

SURVEY QUESTION:

1. **From your own knowledge of the relative value concept do you believe?**
    - **a) That CSMS should adopt a relative value scale?**
    - **b) That CSMS should not adopt a relative value scale?**
    - **c) No opinion?**

67 per cent of the private practitioners favor adoption of a relative value scale by The Con-

necticut State Medical Society, with 19 per cent opposed.

While it is obvious that understanding concerning relative value is not complete, an overwhelming majority of doctors are willing to try this approach in the hope of getting more equitable payments than now exists.

In interviews, it appears that most of those opposed to this approach have an inadequate understanding of the relative value concept and fear its use by insurance companies in standardizing payments, but we do have clear evidence of the desire of most doctors to further investigate the relative value concept.

Fields 66 to 69

Use Of A Relative Value Scale

SURVEY QUESTIONS:

1. **Assuming that a relative value scale, adopted by CSMS might be used to formulate the "units" in the payment schedules issued by CMS would you be?**
    - **a) In favor of the use of a relative value scale for this purpose?**
    - **b) Opposed to the use of the relative value scale for this purpose?**
    - **c) No opinion?**

72 per cent of the private practitioners indicate that if a relative value scale is adopted by the State Society they would be in favor of using it in the formulation of "units" in payment schedules in CMS contracts. 16 per cent would be opposed.

2. **The same relative value scale might be offered to private insurance carriers for their use in formulating their payment schedules, again to be applied in units, not dollars, would you be?**
    - **a) In favor of the use of a relative value scale for this purpose?**
    - **b) Opposed to the use of the relative value scale for this purpose?**
    - **c) No opinion?**

For private insurance carriers 70 per cent would favor similar use of the relative value scale in units while 18 per cent would not approve.

3. **Another use of relative value scale, if adopted by the CSMS might be to recommend to CMS and to private insurance carriers a "dollar co-efficient" so that not only would the covered services in payment schedules be related in terms of units of time, skill and knowledge but also in terms of actual dollar payments, would you be??**
    - **a) In favor of recommending "dollar co-efficients" to be applied to the relative value scale in regard to CMS?**
    - **b) Opposed to such a recommendation?**
    - **c) No opinion?**

62 per cent private practitioners favor recommending "dollar co-efficients" to be applied to the relative value scale in CMS contracts, 21 per cent would be opposed.

4. **Under circumstances in which private insurance carriers agreed to develop "relative value" contracts, in strict conformance with standards adopted by CSMS, the private insurance carriers might request the Society to "approve" their plan, somewhat as CMS is now "sponsored" by the CSMS, would you be?**
    - **a) In favor of "approving" such private insurance plans by the CSMS?**
    - **b) Opposed to the Society giving such approval?**
    - **c) No opinion?**

61 per cent private practitioners favored "approval" for private insurance contracts under circumstances in which the carrier agreed to develop relative value contracts in conformance with standards adopted by the State Medical Society. 24 per cent would not favor such approval.

In the 66-69 fields, the respondents seem to favor the relative value use to provide "units" and also dollar co-efficients. There is a certain amount of opinion that the dollar co-efficient should not be uniform throughout the state but should be varied based on local conditions. However, most respondents believe that in a state as compact as Connecticut, the dollar co-efficient should be state-wide.

OPINION SURVEY ABSTRACTS

Fields 70 through 74

Prepared by

Norman H. Gardner, East Hampton

Field 70

The Classification Of Doctors Of Medicine Under Insurance And Prepayment Plans

SURVEY QUESTION:

1. **It is sometimes advocated that there will be a differential in the payment schedules of insurance agencies as between general prac-**

titioners and specialists, even when both render an identical item of medical service to the patient. Would you be:

- **In favor of lower payments to non-specialists?**
- **In favor of higher payments to specialists?**
- **Opposed to a differential payment schedule?**
- **Other?**
- **No opinion?**

In response to this question we find about the sharpest divergence of opinion expressed anywhere in the Opinion Survey.

The Specialist Groups strongly favor increased payments to Specialists while the G.P.s just as strongly oppose such an increase. The various Specialty Groups recommend a dual fee system by percentages ranging from 84 per cent to 46 per cent. Against this view we find the G.P.s registering disapproval by 91 per cent. It is interesting to note that all classifications register 50 per cent in favor of dual fees. It should be pointed out that many medical groups have already gone on record in this matter.

Those in favor of dual fees feel that 1) The man who has spent the extra years in study to become a specialist should be compensated for the extra time and study, 2) The patient has a better chance of a good result and faster recovery because of the superior knowledge and skill of the Specialist, and 3) Patients themselves have learned to appreciate Specialists' care and expect to spend more for it.

Those who are opposed to any duality of fees feel that 1) Such a procedure would not be feasible in insurance schedules, 2) Such action would cause a severe split among the doctors, 3) The procedure should determine the fee, and 4) It might conceivably increase the number of specialists to absurdity.

Field 71

If There Were To Be Differentials In Payment Schedules Between Specialists And Non-Specialists, What Should Be The Per Cent Of Difference?

SURVEY QUESTION:

1. **If there were to be a difference in the rate of payment for identical services to the specialist and to the non-specialist, which would you favor?**
    - **Up to 20 per cent lower to the non-specialist?**
    - **Up to 10 per cent lower to the non-specialist?**
    - **Up to 10 per cent higher to the specialist?**
    - **From 11 per cent to 14 per cent higher to the specialist?**
    - **From 15 per cent to 19 per cent higher to the specialist?**
    - **20 per cent or more higher to the specialist?**
    - **Other?**
    - **No opinion?**

When asked what the difference in payment should be between Specialists and non-Specialists for identical services, 37 per cent of private practitioners favored payment of 20 per cent (or more) higher fees to Specialists; 13 per cent favored up to 10 per cent higher; 7 per cent from 15 to 19 per cent higher; 4 per cent from 11 to 14 per cent higher; and 31 per cent No Opinion or Other. In interviews there seemed to be some feeling that an across the board percentage would be too arbitrary. The feeling was expressed that the payment for each procedure should be arrived at individually. In other words, each entity should be based on its merits.

As to lesser payments to non-specialists, only 4 per cent favored an up to 20 per cent lower rate and another 4 per cent felt an up to 10 per cent lower rate would be desirable.

Field 72

On What Criteria Should A Specialist Be Qualified With Respect To Payment Schedules?

SURVEY QUESTION:

1. **On what basis do you feel a doctor of medicine should be qualified as a specialist with respect to prepayment and insurance plans?**
    - **Specialty board certified?**
    - **Specialty board eligible?**
    - **Hospital staff designation?**
    - **Self designation?**
    - **Other?**
    - **No opinion?**

The preponderance of those answering (74 per cent) felt that Board eligible or Board certified should be the criteria for qualifications as a Specialist entitled to receive an increase in fees. In interviews it was pointed out, however, that in some localities, this would not be appropriate since some excellent Specialists antedate the various Boards. In addition it was noted that some Specialties have no Boards.

Fields 73 and 74

Are Years In Practice A Criterion On Which To Base Differentials In Payment Schedules?

SURVEY QUESTION:

1. **Do you feel that any of the following criteria should be considered in making a differential in payment (higher) to physicians in the same type of practice and rendering identical categories of service?**
   - **Over five year in practice?**
   - **Over ten years in practice?**
   - **Over twenty years in practice?**
   - **Chief of service accredited hospital?**
   - **None should be considered?**
   - **No opinion?**

SURVEY QUESTION:

2. **Do you feel that a physician starting practice (perhaps up to one or two years) should be paid for identical services in accordance with a lower fee schedule of payments than his longer established colleagues in the same type of practice?**

SURVEY QUESTION:

3. **Do you feel that they should both be paid in accordance with the same schedule?**

There was mighty little support for the position that a differential in payment might apply to those who had been longer in practice. Indeed, this idea caused no little resentment.

It was also felt along the same line, that the physician starting practice should enjoy the same fee schedule as the rest of the doctors.

Field 75

Insurance Payments For Consultants, For Assisting Surgeons, And Assisting Surgeons Only In Hospitals Not Providing Resident Assistants?

SURVEY QUESTION:

1. **Do you believe payment should be provided under CMS and insurance polices for:**
   - **Consultants?**
   - **Assisting surgeons?**
   - **Assisting surgeons only in hospitals not providing resident assistants?**

The survey indicated overwhelming approval for third party payments to consultants, although there was the feeling expressed that there might be abuses such as too many consultations. Most thought these could be policed, however.

There also was approval for paying assisting surgeons, but this was not quite so strong as in the case of consultants. The range of those in favor ran from 87 per cent in the responses from Urologists to a lower 51 per cent in the responses from Internists.

Field 76

Effect Of CMS Program On Doctors' Incomes

SURVEY QUESTION:

1. **In your own practice do you feel that the CMS program has**
   - **Increased your income from practice?**
   - **Not affected your income from practice?**
   - **Decreased your income from practice?**
   - **No opinion?**

In answer to the question concerning increase or decrease of income under CMS, there was division of private practitioner opinion, 44 per cent feeling the income was not affected and 40 per cent feeling it was increased by CMS. A minor proportion who reported a decrease in income came largely from Fairfield and New Haven Counties, with a lesser number from Hartford, New London, and Litchfield Counties. In Windham and Tolland Counties there was no indicated loss in income as the result of CMS.

OPINION SURVEY ABSTRACTS

Final Sections

Prepared by
Benjamin Katzin, Torrington

Respondents' Opinions About The Opinion Survey

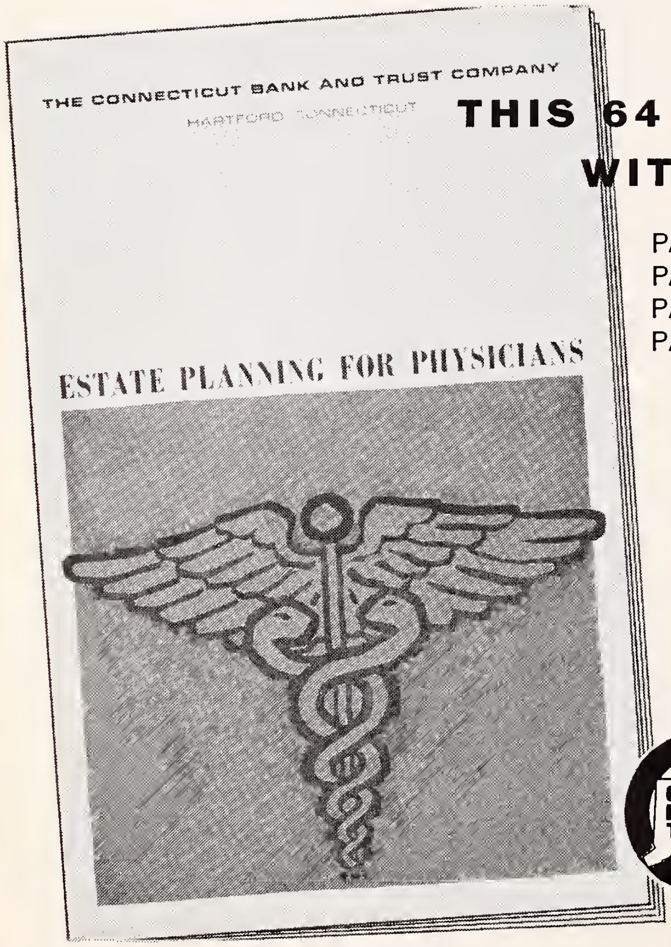
Through 81 individual and confidential interviews, certain broad attitudes of a sampling of respondents toward the Opinion Survey, its purposes and possible uses, were gathered by the interviewer, Mr. Roscoe C. Edlund of Rogers, Slade and Hill, and these are summarized herewith.

There were many expressions of opinions as to the value of the questionnaire and opinion survey. Most opinions expressed were favorable toward the general purposes of the study. There were, however, a few who were very critical. One such attitude expressed was that the cost would better have been spent on outside help to the Society from a full time representative to assist in negotiations on all third party payments. Along this line was the thought that assistance from economists and research workers would be valuable. Another thought was that the value of the Survey would depend on how it was put to use. Appreciation was expressed for the interviews, which gave the opportunity to go into detail. It was felt that the main value would be in dealing with CMS and in working out a relative value scale.

Additional thoughts expressed showed concern for the future of medicine and the future supply of doctors. There was some feeling that the status of medicine is in jeopardy. There was expression in one way or another about the threats of government and other outside control. Some felt that more vigorous leadership especially in the County Associations should be encouraged.

In conclusion, it is apparent that most men felt the Survey was beneficial in many ways. Moreover, it gave all those interviewed an opportunity to express themselves in detail on the specific questions and on other matters of importance to the Society.

(*This is the last of a series of three articles.*)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Clinical Medicine

NOTES ON ECTOPIC PREGNANCY

From The Committee On Maternal Mortality And Morbidity

Clarence D. Davis, m.d.
Charles B. Cheney, m.d.
Bernard R. Swan, m.d.

This patient is a 27-year-old white gravida II, para 1, abortus 0, Rh positive, serology negative woman, who was admitted to the emergency room by ambulance because of severe abdominal pain. The patient had been discharged from the same hospital 12 days previously with a diagnosis of pelvic inflammatory disease, for which she had received a course of penicillin.

Past History

The only child was 2 years old. There was no previous history suggestive of pelvic inflammatory disease.

First Hospital Admission

Two and one-half weeks prior to the last admission the patient had been admitted with a chief complaint of abdominal pain of approximately 16 hours' duration. The afternoon of the day of admission the patient fainted. This was a very unusual occurrence for the patient. She had also vomited. History revealed that the last normal menstrual period had occurred approximately two months prior, although one month before the first admission she had had bleeding of 3-4 days duration, followed by 8-9 days of no bleeding, and then bleeding for another three days. The patient was not bleeding on admission. The general physical examination was unremarkable; abdominal examination showed definite bilateral tenderness in the lower quadrants; pelvic examination revealed marked tenderness in the adnexa, which could not be clearly outlined because of this tenderness. The admitting impression was possible pelvic inflammatory disease or possible ectopic pregnancy. The following day the patient was seen by the attending physician and at that time there were no adnexal masses palpable, but there was questionable fullness in both the right and the left parametria. There was diffuse tenderness throughout the lower abdomen, and a working diagnosis of pelvic inflammatory disease was made. She was given depopenicillin. A complete blood count showed a WBC of 9,200, 79 per cent PMN, 6 per cent bands, 12 per cent lymphocytes, 1 per cent monocytes. The hemoglobin was 7.5 grams, with a hematocrit of 31 per cent. The urinalysis was negative. Non-protein nitrogen was 24 milligrams per cent; fasting blood sugar 84 milligrams per cent. The Mazzini and VDRL were nonreactive. The frog test was negative. Vaginal smear was not remarkable. Vaginal culture was negative for gonococcus organism. While in the hospital the patient's temperature ranged from 99.6 to 98.6; Pulse 80 to 95. Blood pressure ranged from 118/70 to 120/72. Following a week of depopenicillin the symptoms had improved and the patient was discharged to the gynecological clinic. There is no note that a discharge pelvic examination was done or that a repeat hemoglobin or hematocrit was carried out.

Interval History

The patient was seen in the gynecological clinic nine days following discharge from the hospital. The patient stated that in this nine-day interval she had had morning nausea and vomiting, urinary frequency, burning and breast soreness. No other symptoms were noted. The examiner was acquainted with the details of the recent hospital admission. Pelvic examination at this time revealed the uterus to be small and in an anterior position. The left adnexa were very tender and there was a sensation of a soft, mass-like resistance. The working diagnosis continued to be pelvic inflammatory disease.

Dr. Clarence D. Davis is Associate Professor of Obstetrics and Gynecology, Yale University School of Medicine.

Dr. Charles B. Cheney is Assistant Clinical Professor of Obstetrics and Gynecology, Yale University School of Medicine.

Dr. Bernard R. Swan is Attending Obstetrician and Gynecologist, Hospital of St. Raphael, New Haven.

Final Admission

Three days after the last clinic visit the patient was admitted to the emergency room by ambulance. This was at 3:15 A.M. The reason for admission was severe abdominal pain. The blood pressure on admission was reported to be 90/60; temperature 97; pulse 120; respirations 20. Twenty-five minutes later the patient was pronounced dead.

Autopsy Examination

When the abdomen was opened, some 3,500 cc. of fresh blood was found lying free in the peritoneal cavity. There was a left tubal pregnancy, consisting of a total mass 7x6 cm. in diameter, containing a fetus measuring 4.5 cm. crown-rump. There was also bilateral chronic salpingitis.

Final Diagnosis

Exsanguinating hemorrhage from a ruptured left tubal pregnancy.

Comments

a) A negative pregnancy test does not rule out the presence of an ectopic pregnancy. By the time the diagnosis is established the pregnancy test is much more apt to be negative than positive.

b) A patient with an abnormal menstrual history, hemoglobin of 7.5 grams and symptoms of an ectopic pregnancy should be so considered until proven otherwise. A culdocentesis, or better, a posterior culpotomy, would have established the diagnosis. An unnecessary laparotomy may be excusable. This catastrophe is not.

c) A hemoglobin of 7.5 grams demands re-check. If this level is confirmed, reasons for such a low level should be actively investigated. Blood replacement therapy should be considered.

d) All too often a working diagnosis of pelvic inflammatory disease lulls us into a sense of diagnostic inactivity and false security.

e) The diagnosis should have been obvious at the time the patient was seen in the clinic nine days following the first discharge from the hospital. At this time very tender left adnexa were found, with a left adnexal mass. These findings, in addition to the history, should have made operation mandatory.

Summary

This case illustrates the fallacy of depending on a negative pregnancy test to rule out ectopic pregnancy, the necessity of searching for causes of marked degrees of anemia and that a working diagnosis should not be unalterable (the pelvic examination done at the time of the interval clinic exam was highly suggestive of ectopic pregnancy and not pelvic inflammatory disease).

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255 SOUTH WHITNEY ST. HARTFORD, CONN.

170th ANNUAL MEETING

of the

CONNECTICUT STATE MEDICAL SOCIETY

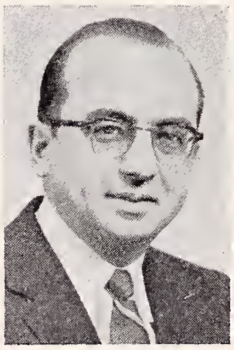
Statler-Hilton Hotel

10 Ford Street, Hartford, Connecticut

May 2, 3, 4, 1962

PROGRAM COMMITTEE

Howard Levine, *New Britain, Chairman*
Harvey W. Kaetz, *New Haven*
Allen M. Margold, *Norwalk*



Howard Levine
New Britain

David L. Warren
Manchester

LOCAL COMMITTEE ON ARRANGEMENTS

David L. Warren, *Manchester, Chairman*
Deal T. Aseltine, Jr., *Hartford*
William H. Glass, *Hartford*

GENERAL INFORMATION

Read Carefully — — — Many New Events

REGISTRATION:

The registration desk will be located on the mezzanine floor and everyone attending the meeting is requested to register. There will be no charge for registration and all members of the Society will be given a guest luncheon ticket when and only if they register.

PARKING:

There are ample parking facilities at the hotel and in the surrounding area. If you wish, you may drive up to the door of the hotel and an attendant will park your car for you.

TELEPHONE:

Telephone messages will be received at CHapel 9-5611.

LUNCHEONS:

Luncheons will be served in the Terrace Room on May 3 and 4 and ALL MEMBERS OF THE SOCIETY REGISTERING WILL BE THE GUESTS OF THE SOCIETY. PLEASE REMEMBER, A LUNCHEON TICKET WILL BE GIVEN TO MEMBERS ONLY IF THEY REGISTER.

HOTEL ACCOMODATIONS

Persons who wish to remain overnight should make reservations not later than two weeks prior to opening date of the meeting. Reservations will be held only until 6:00 P.M. on the day of arrival unless later hour is specified. Please indicate in your letter that you are attending the Connecticut State Medical Society Meeting. Your letter should be directed to the Front Office Manager, Statler-Hilton Hotel, 10 Ford Street, Hartford 3, Connecticut.

ANNUAL DINNER

The Annual Dinner will be held at the hotel on Thursday, May 3, 1962. The social hour will be at 6:15 P.M. and the dinner at 7:00 P.M. All persons attending the dinner will be the guests of the Society at the social hour which will begin *promptly* at 6:15 P.M. and end *promptly* at 7:00 P.M. Your reservation for dinner should be sent in as soon as possible, as it is anticipated that space will be limited.

PROGRAM

Wednesday, May 2

MEZZANINE

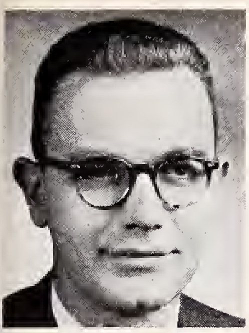
Annual Meeting of the House of Delegates

MICHAEL R. SCULLY, *Bridgeport, Speaker of the House, presiding*

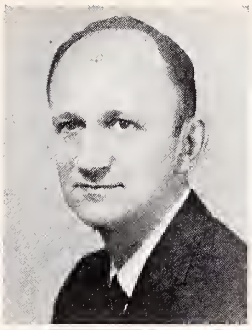
10:00 CALL TO ORDER
BUSINESS SESSION

1:00 LUNCHEON FOR OFFICERS, MEMBERS OF THE HOUSE AND GUESTS

2:00 RESUMPTION OF BUSINESS
Social hour immediately following the adjournment of the meeting



Robert G. Siekert
Rochester, Minn.



Hugh H. Hussey
Washington, D. C.

Richard Ford
Boston

Eugene E. Clifton
New York

W. Roy Breg
Southbury

Thursday, May 3

9:00 Registration—Mezzanine

City Rooms

10:00 Call to Order—Clyde L. Deming, New Haven, President of the Society

Address of Welcome—Arnold H. Becker, President, Hartford County Medical Association

William J. Lahey, *Hartford, presiding*

10:30 Cerebrovascular Ischemia

Robert G. Siekert, *Rochester, Minnesota; Consultant in Neurology, Mayo Clinic; Assistant Professor of Neurology, Graduate School, University of Minnesota*

11:10 Intermission to Visit Technical Exhibits

11:40 Peripheral Vascular Diseases

Hugh H. Hussey, *Washington, D. C.; Dean, Georgetown University School of Medicine; Professor of Medicine, Georgetown University School of Medicine; Member of the Board of Trustees of the American Medical Association.*

(Program arranged with Connecticut Chapter—American Academy of General Practice.)

Samuel B. Rentsch, *Derby, presiding*

12:20 Violence By Whom

Richard Ford, *Boston, Massachusetts; Associate Clinical Professor of Legal Medicine, Harvard Medical School; Medical Examiner, Suffolk County (Boston); Massachusetts State Police Pathologist*

Program arranged with Association of Medical Examiners of Connecticut.)

1:00 Luncheon—Terrace Room

Intermission to Visit Technical Exhibits

Paul H. Twaddle, *Hartford, presiding*

2:00 Current Status of Treatment with Fibrinolytic Agents

Eugene E. Cliffton, *New York City; Associate Member, Sloan-Kettering Institute for Cancer Research; Associate Professor Clinical Surgery, Cornell University Medical College.*

2:40 Human Chromosomal Abnormalities

W. Roy Breg, *Southbury, Connecticut; Clinical Instructor in Pediatrics, Yale University School of Medicine; Pediatrician to the Outpatient Department, Grace-New Haven Community Hospital; Assistant Medical Director, Southbury Training School*

Thursday, May 3

MEETINGS OF SECTIONS OF THE SOCIETY AND GUEST ORGANIZATIONS

WOMAN'S AUXILIARY TO THE CONNECTICUT STATE MEDICAL SOCIETY

18th Annual Meeting — Statler Hilton Hotel, Hartford

President: Mrs. George J. Rosenbaum, *West Hartford*
Recording Secretary: Mrs. Harry Knight, *Middletown*
Corresponding Secretary: Mrs. Edwin R. Connors, *Hartford*

3:15 Registration

3:30 Business Meeting
Election of Officers

6:15 Social Hour

7:00 Combined Annual Dinner with the Connecticut State Medical Society

SECTION ON DERMATOLOGY

2:30 Room 424

President: Charles Sheard, *Stamford*
Secretary: Charles W. O'Neill, *Hartford*

Facial Surgery

Douglas P. Torre, *New York City; Assistant Professor of Clinical Medicine (Dermatology), Cornell University Medical College and the New York Hospital*

Discussion Period

Business Meeting and Election of Officers

SECTION ON GASTROENTEROLOGY

3:30 Washington Room

President: Max Caplan, *Meriden*
Secretary: H. David Frank, *Bridgeport*

Diagnosis and Management of Diverticular Disease of the Colon

Theodore S. Heineken, *Montclair, New Jersey; President of the American College of Gastroenterology.*

Christopher Beling, *Montclair, New Jersey; Fellow of American College of Surgeons*

Thursday, May 3

JOINT MEETING
SECTION ON OBSTETRICS AND GYNECOLOGY
CONNECTICUT SOCIETY OF AMERICAN BOARD OBSTETRICIANS AND GYNECOLOGISTS

3:30 New York Room

President: Joseph Klein, *Hartford*
Secretary: Robert H. Wyatt, *Greenwich*

Clinical Evaluation of Sparteine Sulfate

Emanuel Friedman, *New York City; Assistant Professor of Obstetrics and Gynecology, Columbia University College of Physicians and Surgeons*

SECTION ON ORTHOPEDICS

3:30

Hunt Memorial Building, 230 Scarborough Street, Hartford

Chairman: Albert S. Atwood, *Torrington*
Secretary: Anthony L. Camarda, *Bridgeport*

Fractures of the Proximal End of the Humerus

Alexander P. Aitken, *Boston; Professor, Orthopedic Surgery, Tufts College Medical School*

Fractures of the Elbow

Paul I. O'Brien, *Boston; Assistant Professor, Orthopedic Surgery, Tufts College Medical School*

SECTION ON PHYSICAL MEDICINE

3:00 Room 404

President: Sung J. Liao, *Middlebury*
Secretary: George D. Dorian, *Bloomfield*
Program Chairman: Robcliff V. Jones, Jr., *New Haven*

Action of Extrinsic and Intrinsic Muscles of the Normal Foot

Emanuel B. Kaplan, *New York City; Associate Clinical Professor of Anatomy, Columbia University College of Physicians and Surgeons; Consultant and Chief of Hand Surgery; Hospital for Joint Diseases, New York City*

SECTION ON RADIOLOGY

3:30 Buffalo Room

President: Ralph T. Ogden, *Hartford*
Secretary: Wayne P. Whitcomb, *New Haven*

Split Notochord Syndrome

Edward B. D. Neuhauser, *Boston; Radiologist-in-Chief, The Children's Hospital Medical Center*

Thursday, May 3

SECTION ON UROLOGY

3:30 Boston Room

President: Philip M. Cornwell, *Hartford*
Secretary: Walter A. Schloss, *Hartford*

Clinical Enzymology

Howard J. Wetstone, *Hartford; Department of Research, Hartford Hospital*

CONNECTICUT DIABETES ASSOCIATION

2:00 Room 420

President: M. David Deren, *Bridgeport*
Secretary: James C. Hart, *Hartford*

Symposium: Education of the Diabetic Patient in the General Hospital

Thaddeus S. Danowski, *Pittsburgh; Professor of Medicine, University of Pittsburgh School of Medicine*

M. David Deren, *Bridgeport; President Connecticut Diabetes Association*

Mrs. Alice Scanlon, *Hartford; Diabetic Nursing Supervisor, Hartford Hospital*

Miss Margaret McLaughlin; *Hartford; Therapeutic Dietician, Hartford Hospital*

ASSOCIATION OF MEDICAL EXAMINERS OF CONNECTICUT

3:30 Room 416

President: Samuel B. Rentsch, Sr., *Derby*
Secretary: Francis P. A. Williams, *Monroe*

Business Meeting

Richard Ford, *Boston; Associate Clinical Professor of Legal Medicine; Harvard Medical School; Medical Examiner, Suffolk County (Boston); Massachusetts State Police Pathologist; will meet with the Section for a group discussion.*

CONNECTICUT CHAPTER–AMERICAN PHYSICAL THERAPY ASSOCIATION

12:30 Hotel Bond, Hartford

President: W. Gilbert Wolf, *Hartford*
Secretary: Brenda Buchanan, *Hartford*

1:30 Kinesiology of the Knee

Emanuel B. Kaplan, *New York City; Associate Clinical Professor of Anatomy, Columbia University College of Physicians and Surgeons; Consultant and Chief of Hand Surgery, Hospital for Joint Diseases, New York*

3:00 The group will join the Section on Physical Medicine of the Connecticut State Medical Society at the Statler-Hilton Hotel in Room 404.

Thursday, May 3

CONNECTICUT OCCUPATIONAL THERAPY ASSOCIATION

3:30 Room 412

President: Robert Belyea, *Wapping*
Secretary: Mrs. Ruth Griffin, *West Hartford*

THERAPEUTIC COMMUNITIES IN MENTAL AND GENERAL HOSPITALS

WILFRED BLOOMBERG, *Hartford; Commissioner of Department of Mental Health; State of Connecticut*

HEZEKIAH BEARDSLEY PEDIATRIC CLUB

3:30 Room 408

President: Morris Y. Krosnick, *New Haven*
Secretary: John B. Morrison, *Orange*

BUSINESS MEETING

Thursday, May 3

ANNUAL DINNER OF THE SOCIETY

STATLER-HILTON HOTEL
10 Ford Street
Hartford, Connecticut
Social Hour 6:15 P.M. Dinner 7:00 P.M.

PROGRAM

INTRODUCTION OF NEWLY ELECTED OFFICERS—RALPH L. GILMAN, *Storrs, Chairman of the Council*

CLYDE L. DEMING, *New Haven, presiding*

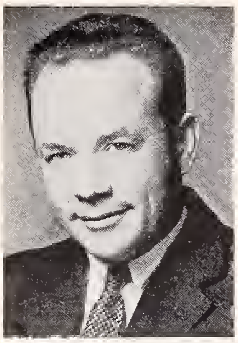
PRESENTATION OF GUESTS AND DELEGATES FROM STATE MEDICAL SOCIETIES

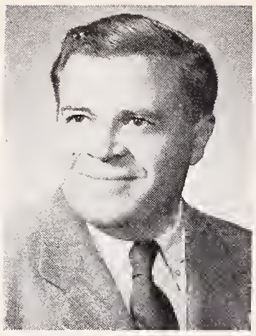
FIFTY YEAR MEMBERSHIP AWARDS

THOMAS JOSEPH BERGIN, *Cos Cob*
HOWARD WHEATON BRAYTON, *Hartford*
JOHN HENRY DILLON, *Waterbury*
GEORGE GOLDMAN, *New Haven*
CHARLES ELIAS HYDE, *St. Petersburg, Florida*
H. GILDERSLEEVE JARVIS, *West Hartford*

GUEST SPEAKER

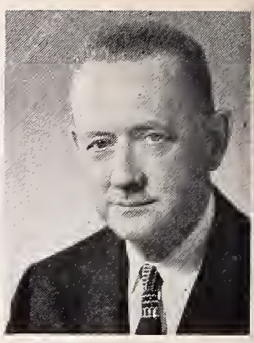
EDWARD R. ANNIS, M.D., *Miami, Florida; Chairman of the American Medical Association's National Speakers Bureau*


Eugene F. Poutasse
Cleveland


F. A. Simeone
Cleveland

John Rock
Brookline, Mass.

James L. Poppen
Boston


Willis J. Potts
Chicago

Friday, May 4

9:00 Registration—Mezzanine

City Rooms

Allen M. Margold, *Norwalk, presiding*

9:45 Reconstructive Surgery in Renal Hypertension

Eugene F. Poutasse, *Cleveland, Ohio; Urologic Surgeon, Cleveland Clinic*

10:30 Shock

F. A. Simeone, *Cleveland, Ohio; Professor of Surgery, Western Reserve University Medical School; Director of Surgery, Cleveland Metropolitan General Hospital*

11:10 Intermission to Visit Technical Exhibits

Ralph C. Wright, *New Britain, presiding*

11:40 Anovulatory Agents

John Rock, *Brookline, Massachusetts; Clinical Professor of Gynecology, Emeritus, Harvard Medical School; Director, Rock Reproductive Study Center, Brookline*

12:20 The Changing Concepts of Pituitary Adenomas

James L. Poppen, *Boston, Massachusetts; Chief of Neurosurgery, Lahey Clinic; Consultant to Taunton State Hospital, Jamaica Plain Veterans Hospital, Sturdy Memorial Hospital, St. Luke's Hospital*

(Program arranged with Section on Neurosurgery.)

1:00 Luncheon—Terrace Room

Intermission to Visit Technical Exhibits

PROGRAM ARRANGED WITH THE CONNECTICUT SOCIETY OF AMERICAN BOARD SURGEONS

James W. Major, *President, Willimantic, presiding*

2:00-3:30 Pediatric Surgery—Case Presentations

Willis J. Potts, *Chicago, Illinois; Professor of Surgery, Northwestern University; Pediatric Surgical Consultant, The Children's Memorial Hospital; Chairman, Surgical Section of the American Academy of Pediatrics*

The Connecticut Society of American Board Surgeons will have a social hour and dinner at the Shoreham Motor Hotel, 440 Asylum Street, Hartford, at 6:00 p.m. Following dinner, Dr. Potts will speak on "Present Status of Cardiac Surgery in Pediatrics."

Friday, May 4

MEETINGS OF SECTIONS OF THE SOCIETY AND GUEST ORGANIZATIONS

SECTION ON ALLERGY

3:30 Boston Room

President: Irving H. Krall, *Hartford*
Secretary: Marvin Mogil, *New Haven*

MECHANISM OF PENICILLIN SENSITIVITY

BERNARD B. SIEGEL, *Brooklyn; Associate in Allergy, Division of Medicine, Jewish Hospital of Brooklyn; Clinical Assistant Professor of Medicine, Downstate Medical Center; Attending Allergist, V. A. Hospital, Brooklyn*

SECTION ON ANESTHESIA

Buffalo Room

President: Edward J. Platz, *Manchester*
Secretary: Sidney A. Chait, *Torrington*
Program Chairman: John E. Keet, *Waterbury*

3:30 BUSINESS MEETING

4:30 THE HALOGENATED HYDROCARBONS AND ETHERS

JOSEPH F. ARTUSIO, JR., *New York City; Professor of Anesthesiology, Cornell University Medical College; Anesthesiologist-in-Chief, New York Hospital*

SECTION ON NEUROSURGERY

3:30 New York Room

President: William B. Scoville, *Hartford*
Secretary: Franklin Robinson, *New Haven*

BUSINESS MEETING

SECTION ON PREVENTIVE MEDICINE AND PUBLIC HEALTH

3:30 Washington Room

Chairman: Alfred L. Burgdorf, *Hartford*
Secretary: Mila E. Rindge, *Hartford*

BIOMEDICAL RESEARCH IN AIR POLLUTION

L. OTIS EMIK, *Ph.D., Washington, D. C.; Chief, Laboratory of Medical and Biological Sciences, Division of Air Pollution, U. S. Public Health Service, Department of Health, Education, and Welfare, Washington, D. C.*

Friday, May 4

EYE, EAR, NOSE AND THROAT SECTION

3:30

President: John P. Simses, *Bridgeport*
Secretary: Arthur C. Unsworth, *Hartford*

(There will be two separate programs, one for the Eye Group and one for the Ear, Nose and Throat Group.)

EYE SECTION — Room 408

Herpes Simplex Keratitis

Arthur G. Devoe, *New York City; Professor of Ophthalmology, Columbia University College of Physicians and Surgeons; Director of Ophthalmology, Presbyterian Hospital, New York City*

ENT SECTION — Room 412

Symposium on Serous Otitis Media—To Stab or Not to Stab

Panel discussion by members of the Section

4:30 Combined Business Meeting—Rooms 408-412

5:30 Social Hour—Room 404

6:30 Dinner—Rooms 408-412

CONNECTICUT CHAPTER OF NATIONAL ASSOCIATION OF SOCIAL WORKERS — MEDICAL SOCIAL WORK SECTION

3:30 Rooms 416-420

Chairman: Mrs. Loretta A. White, *Middletown*
Secretary: Miss Jane O'Neill, *New Haven*

Family Treatment in Acute Psychiatric In-Patient Service of a General Hospital

Thomas P. Detre, *New Haven; Chief, Psychiatric Division, Grace-New Haven Community Hospital; Assistant Professor of Psychiatry, Yale University School of Medicine*

Friday, May 4

CONNECTICUT ASSOCIATION OF MEDICAL RECORD LIBRARIANS

Room 424

President: Jean A. Ryan, *Hartford*
Secretary: Mary Santarsiero, *Manchester*
Program Chairman: Mary-Elizabeth Toohey

9:30 Registration

10:00 Business Meeting

11:15 YOO-OOO (013 - 074 - 012)
A. Elmer Diskan, *Manchester; Director of the Department of Medicine, Manchester Memorial Hospital*

12:30 Luncheon—*Shoreham Motor Hotel, Hartford*

2:00 Reports to Insurance Companies
John C. Robinson, *Hartford; Medical Director, Travelers Insurance Company*

3:15 Fascinating Aspects of Space Medicine
Joseph J. Kristan, *Rockville; Flight Surgeon, Connecticut Air National Guard*

4:15 Exhibits

ART EXHIBIT
CONNECTICUT PHYSICIANS' ART ASSOCIATION

President: John M. Freiheit, Waterbury
Auxiliary Chairman: Mrs. Ernest Rosenthal, *West Hartford*

The 1962 exhibit of the Connecticut Physicians' Art Association will be held during the Annual Meeting in the ballroom of the Statler-Hilton Hotel. Members of the Woman's Auxiliary to the Society will participate in the exhibit and children of members of the Society have been invited to submit entries.

Exhibits 1962 Annual Meeting

Space	*Firm*	*Location*
1	Arthur W. Eade Insurance Agency	New Haven, Conn.
2	S. E. Massengill Company, Inc.	New York, N. Y.
3	Westwood Pharmaceuticals	Buffalo, N. Y.
4	Burroughs Wellcome & Company, Inc.	Tuckahoe, N. Y.
5	G. D. Searle and Company	Chicago, Ill.
6	Spencer, Inc.	New Haven, Conn.
7	Surgeons & Physicians Supply Company	Boston, Mass.
8	Warren-Teed Products Company	Columbus, Ohio
9	Abbott Laboratories	North Chicago, Ill.
10	Desitin Chemical Company, Inc.	Providence, R. I.
11	Merck, Sharp & Dohme	West Point, Pa.
12	Professional Equipment Company	New Haven, Conn.
13	U. S. Vitamin & Pharmaceutical Corporation	New York, N. Y.
14	Sandoz Pharmaceuticals	Hanover, N. J.
15	Mead Johnson Laboratories	Evansville, Ind.
16	J. B. Roerig & Company	New York, N. Y.
17	Ciba Pharmaceutical Products Company	Summit, N. J.
18	Witold J. Mikelk (Medco Products)	Auburn, Mass.
19	Educational Exhibit	
20	Educational Exhibit	
21	Eaton Laboratories, Div. Norwich Pharmacal	Norwich, N. Y.
22	Pfizer Laboratories	New York, N. Y.
23	W. B. Saunders Company	Philadelphia, Pa.
24	A. H. Robins Company, Inc.	Richmond, Va.
25	Seven-Up Bottling Company	Wethersfield, Conn.
26	Wampole Laboratories	Stamford, Conn.
27	The Upjohn Company	Kalamazoo, Mich.
28	King Merritt & Company, Inc.	West Hartford, Conn.
29	Brewer & Company, Inc.	Worcester, Mass.
30	E. R. Squibb & Sons	New York, N. Y.
31	The Birtcher Corporation	Boston, Mass.
32	Educational Exhibit	
33	Educational Exhibit	
34	The Purdue Frederick Company	New York, N. Y.
35	Organon, Inc.	West Orange, N. J.
36	Roche Laboratories	Nutley, N. J.
37	The Coca-Cola Company	Atlanta, Ga.
38	Group Insurers, Inc.	New Haven, Conn.
39	Maico Hearing Service	Hartford, Conn.
40	Lederle Laboratories	Pearl River, N. Y.
41	Thermo-fax Sales, Inc.	Hamden, Conn.
42	R. J. Reynolds Tobacco Company	Winston-Salem, N. C.
43	Eli Lilly & Company	Indianapolis, Ind.
44	Great Books of the Western World, Encyclopaedia Brittanica	Wellesley, Mass.
45	Parke, Davis & Company	Detroit, Mich.
46	Lessere-Wertheim, Inc.	Hartford, Conn.
47	Dictating Equipment Corp.	Hartford, Conn.
48	The D. G. Stoughton Company	Hartford, Conn.
49	Connecticut Medical Service	New Haven, Conn.

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- Your dividends and interest are collected and deposited to your account.
- Complete records are kept for your tax purposes.
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AROUND THE STATE

Naugatuck Valley Medical Society

In continuing to implement the concept of the Connecticut Medical Community as conceived by James Burch, communications director for the Connecticut State Medical Society, the Naugatuck Valley Medical Society will hold a joint meeting with dentists, druggists and lawyers on the proper role of the federal government in the health care field.

A speaker was provided to the local Board of Trade to discuss the King-Anderson bill. It was felt that this large lay group were better able to appreciate the real issues in this matter following the presentation.

The society is continuing to support a local high school in the financing and production of its annual "Science Fair." This project has done much to create a favorable physician image among our high school students.

The preliminary surveys of the local nursing profession show considerable enthusiasm for the new Connecticut Medical Political Action Committee program and long range objectives.

A budget has been appropriated to cover clerical and administrative costs for the society sponsored local medical panel program. Recent revisions in procedure have made the panel service extremely efficient. It is now felt that no citizen of this area can legitimately state that he was unable to get a doctor in case of emergency.

The annual spring dance of the Woman's Auxiliary will be held this month. The auxiliary is beginning plans already for their fund raising drive in the form of the 2nd annual Naugatuck Valley Medical Society Scholarship Ball opened to the community and to be held in the fall.

Annual Meeting Of The Connecticut Heart Association

The annual meeting of the Connecticut Heart Association will be held on May 24, 1962 at the Waterbury Country Club, Waterbury, Connecticut. Members of the Connecticut Academy of General Practice are cordially invited to attend this meeting. The theme of the scientific session will be "Coronary Artery Disease and Anticoagulants."

New England Otolaryngological Society

The New England Otolaryngological Society will hold its spring meeting in Fitkin Amphitheater on Wednesday, May 16, 1962.

Hartford County

Dr. Stevens J. Martin, Director of the Department and School of Anesthesiology, was invited to be the guest of the India Society of Surgeons and the India Society of Anesthesiologists at the 23rd and 13th annual meetings of the respective societies held in Baroda, India, December 25 to January 1. While in Baroda, he presented four lectures on different aspects of anesthesia; one on medical education—the plight of medical education in America; a fifteen minute radio talk on Air India; and an informal presentation before the members of the Rotary India International.

He also gave anesthesia for cardiac surgery to the daughter of the Mayor of Baroda, the surgery being performed by the famous cardiac surgeon of Tokyo, Dr. S. Sakakibara.

En route on his global trip, Dr. Martin presented 33 lectures and visited medical schools and hospitals in Istanbul, Turkey; Bombay, India; Bangkok, Thailand; Manila, Philippines; Hong Kong, B.C.C.; Tokyo, Japan; and Honolulu.

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Postal regulations on second class mail have become more stringent. Under a new ruling, we must pay eleven cents per piece for undeliverable second class mail, but worst of all, if you don't happen to reside or practice at the *precise* mailing address which we have for you, your JOURNAL will not be delivered. We urge promptness on the part of all JOURNAL readers in notifying us of address changes!

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ANNUAL COUNTY ASSOCIATIONS MEETINGS

New Haven, Thursday, March 22

WAVERLY INN, CHESHIRE

Business Meeting: 2:30 P.M. Dinner: 7:00 P.M.

Speaker: Reverend Robert G. Keating, former Chaplain of the Meriden School for Boys and present Pastor of St. Jude's Church in Derby.

Hartford, Wednesday, April 4

HOTEL STATLER, HARTFORD

Business Meeting: 5:00 P.M. Dinner: 7:15 P.M.

Speaker: Abraham Ribicoff, Secretary of Health, Education, and Welfare.
Subject: "Alliance For Health."

New London, Thursday, April 5

LIGHTHOUSE INN, NEW LONDON

Business Meeting: 8:00 P.M. Cocktails: 5:30 P.M.
There will be no speaker. Dinner: 6:15 P.M.

Fairfield, Tuesday, April 10

STRATFIELD HOTEL, BRIDGEPORT

Business Meeting: 4:00 P.M. Cocktails: 6:00 P.M.
Dinner: 7:15 P.M.

Speakers Mr. Robert C. Grieb, Chief, Narcotic Control Section, Connecticut State Department of Health.
Subject: "Drug Addiction and Narcotic Controls."

Litchfield, Tuesday, April 10

EAST LAWN COUNTRY CLUB, TORRINGTON

Business Meeting: 5:30 P.M. Cocktails: 7:00 P.M.
Speaker and subject to be announced. Dinner: 7:30 P.M.

Middlesex, Thursday, April 12

SUN VALLEY ACRES, MERIDEN

Business Meeting: 4:30 P.M. Cocktails: 6:30 P.M.
Dinner: 7:00 P.M.

Speaker: Mr. Walter Houston, Editor, Science and Math Weekly.
Subject to be announced.

Tolland, Tuesday, April 17

OLD HOMESTEAD INN, SOMERS

Speaker: J. E. Rosenfeld, M.D. Dinner: 6:30 P.M.
Subject: "General Practitioner And His Alcoholic Patient."

Windham, Thursday, April 19

BERRIS MOTEL AND RESTAURANT, DANIELSON

Business meeting will follow dinner. Dinner: 7:00 P.M.
Speaker and subject to be announced.

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LETTERS TO THE EDITOR

March 7, 1962.

To the Editor:

More and more scientific evidence is being accumulated to confirm the fact that air pollution is not only causing a whole series of pulmonary diseases, ranging from a simple dyspnea to carcinoma of the lung, but also automobile accidents, particularly the most dangerous ones such as crossing the midline and causing headon crashes or leaving the road and hitting a tree.

H. Mourey, a member of the French Academy of Sciences, Director of the Paris Municipal Laboratory, recently reported results of carbon monoxide determinations on the blood of 303 automobile drivers having caused accidents. He found that 38 per cent of them presented serious amounts of carboxy-hemoglobin in their blood. A simultaneous determination of alcohol content was either inconsequential or completely negative (on some of the drivers). If one considers that gas fumes contain other toxic gases such as nitric oxide, which is known to be 10 times as toxic as CO, that all the components of polluted air as well as alcohol can have synergistic effects, one can easily understand how futile our fight against alcohol alone can be, even if it were 100 per cent effective.

If one also considers the fact that it has now been proven that inhalation of polycyclic hydrocarbons, particularly benzo-3-4 pyrene, constantly present in the air of larger cities and arising from incomplete fuel combustion, can cause cancer of the lungs as much as smoking does, one is not surprised to learn that the French are already calling air pollution "le mal du siècle."

There is no doubt that air pollution is well on the way of becoming the "plague of the twentieth century." I, for one, would like to see the medical profession start a gigantic campaign against this enemy of life. We should keep informing the public in no uncertain terms of the growing danger. We should pioneer the creation of "Societies for Pure Air," we should press our federal and state authorities to fight this modern plague by allotting sufficient funds to our health authorities for that purpose.

I have no doubt that the task will not be an easy one. It is clear that the ultimate solution of this serious problem will be replacement of presently used fuels by electricity, not only for the industry, but also for home consumption and for propulsion of cars. I can envision the opposition of the gas and oil industry! However, the goal is worth the effort.

Sincerely,

Hartford, Conn.

Marcel Thau, M.D.

March 17, 1962

To the Editor:

I would say the finest tribute to Dr. Paul P. Swett was your perceptive comprehensive and very much needed article in Connecticut Medicine, "The Doctor and the Problem of Human Survival."

Your expressed sentiments which I have long felt very deeply and which I had hoped would be promulgated by some individual or group within our State Society. If it is possible to procure copies of your editorial, I would like to have them for distribution to my patients.

I wonder if you have any suggestions concerning the possibility of publicizing these thoughts. I believe that a group of physicians, might underwrite them. I do know that the Physician's Forum, of which I am a member, is planning an article in the *New York Times* along these lines.

At any rate, congratulations! It is most heartening to encounter a physician whose beliefs extend beyond his immediate personal ambitions.

Very sincerely,

Herbert N. Schwartz, M.D.

Hartford, Conn.

March 8, 1962

To the Editor:

The research library of the Institute of Experimental Medicine and Surgery of the University of Montreal has suffered extensive losses owing to destruction by fire.

In attempting to rebuild our library, we should like to enlist the assistance of the readers of Connecticut Medicine and ask them to send us all available reprints of their work, especially those dealing with ENDOCRINOLOGY and STRESS.

At the same time we wish to point out that our permanent mailing list was also destroyed, hence we shall be able to send reprints of our own publications only to those of your readers who write for them.

Yours sincerely,

Hans Selye,

Professor and Director,
Institute of Experimental Medicine
and Surgery, University of Montreal
P.O. Box 6128, Montreal 26, Canada

New from Saunders

1

Reid — Textbook of Obstetrics

A New Book!—Offers keen insight into the biologic aspects of birth

A fresh approach to obstetrics emphasizing biologic rather than mechanistic aspects. This valuable new book combines basic fundamentals of obstetrics with sound principles of patient management. It will help you solve many maternity problems—from early diagnosis of pregnancy to safe delivery. Look for features such as these: Detailed instructions on managing complications—Emphasis on fetal welfare as well as maternal safety—Help on understanding psychological problems of the expectant mother—Superb illustrations of normal and abnormal conditions, techniques, instruments, etc. Topics include: *Medical and surgical diseases of pregnancy—Assessment of maternal and perinatal mortality—Shock, coagulation defects and acute renal failure—Physiology and mechanisms of labor in parent types of pelves—etc.*

By DUNCAN E. REID, M.D., William Lambert Richardson Professor of Obstetrics and Head of the Department of Obstetrics and Gynecology, Harvard University Medical School; Chief-of-Staff, Boston Lying-In Hospital. Illustrated by EDITH TAGRIN. 1087 pages, 7"x10", with 442 illustrations. About $20.00.
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2

Major and Delp — Physical Diagnosis

New (6th) Edition!—Details procedures for examining every area of the body

Tells how to extract maximum information from physical examination by using the four methods of diagnosis—inspection, palpation, percussion and auscultation. Step-by-step procedures for examination of each body area are carefully delineated in this practical book—what to look for, listen for, and how to use your sense of touch to the greatest advantage.

Completely rewritten for this edition, the text includes such new topics as: *taking a neuropsychiatric history—Physical diagnosis of the child, including normal variations in heart sounds—Examination of the pharynx, the larynx and cheeks—Diagnosis of peripheral vascular disease.* Extensive revisions are reflected in sections on: diseases of the eye; auscultation of the heart; coronary insufficiency; acute myocardial infarction.

By RALPH H. MAJOR, M.D., Professor of Medicine and of the History of Medicine; and MAHLON H. DELP, M.D., Professor of Medicine, The University of Kansas. 355 pages, 6½"x10", with 527 illustrations. About $7.00. *New (6th) Edition—Just Ready!*

3

Adler — Textbook of Ophthalmology

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One of the most useful books on eye care the family physician can own. This text concentrates on the ophthalmic problems of the nonspecialist. Coverage ranges through anatomy and physiology of the eye, methods of examination, malformations and diseases, treatment, indications that call for a specialist.

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By FRANCIS HEED ADLER, M.D., Emeritus Professor of Ophthalmology, University of Pennsylvania Medical School; Consulting Surgeon, Wills Eye, Philadelphia General, and Children's Hospitals of Philadelphia. About 565 pages, 6"x9¼", with 288 illustrations, 26 in color. About $9.50. *New (7th) Edition—Just Ready!*

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NEW BOOKS IN REVIEW

MECHANISMS OF DISEASE. An introduction to Pathology by Ruy Perez-Tamayo, M.D. W. B. Saunders Company, Philadelphia and London, 1961, 512 pp., $14.00.

Reviewed by MARVIN A. CHERNOW

As a most recent contribution to an old-world discipline of science this new book fulfills the need of an enjoyable approach to a better understanding of cellular dysfunction in disease. The author has gone beyond gross morbid anatomy and has directed his writing toward interpreting and correlating cellular and subcellular aberrations in the light of present day understanding of biochemistry. He has done a monument task in integrating the observation of fundamental investigations that have contributed to a better understanding of disease mechanisms.

The book contains ten chapters that lends itself to this type of presentation, and they are:

Degeneration and Regressive Disturbances of Cells in Tissues,
Inflammation,
Repair, Regeneration and Tissue Transplantation,
Disturbances of Growth and Differentiation of Tissue,
General Pathology of Tumors,
General Pathology of Connective Tissue,
General Pathology of Immune Response,
General Pathology of Body Fluids in Electrolytes,
General Pathology of Metabolism and Nutrition.

The historical background introduced to many of the chapters and the numerous illustrations add continuity to the subject matter covered. There is also an up-to-date and extensive bibliography at the end of each chapter which should prove useful to those who wish to pursue the subject matter in more detail. The gross and microphotographic reproductions, unfortunately, are of technically poor quality; however, in the reviewer's opinion they do not seriously detract from the basic value of this book.

In conclusion, this text should prove a valuable addition to the medical library of clinicians, medical students and especially the serious students of pathology.

MEDICAL GENETICS 1958-1960 by Victor A. McKusick, M.D. The C. V. Mosby Co., St. Louis, Mo., 1961, 534 pp., $14.50.

Reviewed by LOUIS H. NAHUM

In 1958 the author and colleagues through a Journal club undertook to review medical genetics literature for that calendar year. Participating were medical students, house officers, research fellows and staff members. It turned out to be a highly useful pedagogical device and this book represents the efforts of the years 1958, 1959, 1960. The reviews for each year were published in the Journal of Chronic Diseases and these are now combined in this book.

Many believe a full textbook of medical genetics is badly needed but apparently few competent authorities have the time to undertake it. To all those, this book can be considered at least a partial substitute.

It is clear enough that genetic factors are observable in all areas of medicine and a review must bear in mind in its organization an analysis of the phenotypic features, the mechanism of gene action, the early detection of disease, the presence or absence of a gene. Information especially biochemical, which bears on the basic defect and the chain which leads from the gene to disease is also important to medical geneticists. Then we need to know the mode of transmission, the dynamics in populations, linkage. Finally, evidence of familiar aggregation of diseases which are probably the result of multiple genetic and environmental factors have all been carefully thought of by the author and included.

One will also find in the 950 items here reviewed preventive and therapeutic measures if they are judged to have a bearing on the more strictly genetic aspects of the disease or if they help to illuminate the mechanism of the disease. Throughout each review one finds critical appraisal of the work reviewed, so that it is not just an elaborated bibliography.

There are at least two groups to whom this book will be particularly useful; the clinicians who find it difficult to keep up with the genetic aspects in their own specialty and general and human geneticists who do not have ready access to the clinical literature. Since genetics infringes on every area of human disease from the head to the toes, it is clear enough then that this book belongs in every medical man's library.

Two especially important areas are well represented. One concerning the amino acid sequences of variant hemoglobins and the other a description of the chromosomal aberrations as the basis of congenital abnormalities in man.

Each review has its sections so arranged as to proceed from the general to the specific. New books, history, general genetics, human genetics, cytogenetics in man, and congenital malformations and biochemical genetics are discussed first. After this, genetic aspects are discussed by systems. The review is easy to use since the index is cumulative and the numbers refer to the paragraph numbers in the text.

As is true with all Mosby books, it is beautifully printed, the illustrations are excellently reproduced and no typographical errors were encountered.

ANATOMY OF THE HUMAN BODY by Henry Gray, F.R.S. Twenty-Seventh Edition, edited by Charles Mayo Goss, M.D. Lea & Febiger, Philadelphia, Pa., 1959. Reprinted in March 1961, 1403 pp., $17.50.

Reviewed by LOUIS H. NAHUM

In this edition, *Gray's Anatomy* has reached its hundredth year and its popularity is as great as ever. It is still dominated by the genius of Henry Gray both as an anatomist and a teacher and just as Vesalues had his Calcar so Gray had his Van Dyke Carter who made the drawings for the first edition. Dr. Goss has made a special effort to preserve the flavor of the original work of these masters wherever it was possible and has to a large extent succeeded.

Since this book is only 1458 pages it obviously cannot be an encyclopedia of detailed information in all specialized fields. Nevertheless the editor has included embryology at the beginning and histology at the end of each chapter, an inclusion of great benefit to the student and often a lead for them as preliminary reading and especially as a review at a later time.

The chapter on the central nervous system, has been completely rewritten and simplified and the number of illustrations is less than in the previous edition but they are more comprehensive. The emphasis to be sure, is, and ought to be placed on morphological and structural features, nevertheless function is not neglected but constantly woven in and implied. The facts firmly established by clinical and experimental research are all there. The result is that this chapter has not omitted important recent discoveries and contains the basic anatomical information required by a medical student in his future work with neurological patients.

The cardiovascular system now is split into three parts: the heart, the arteries and the veins each with its own section on embryology. The chapter on the heart is almost completely rewritten and many new illustrations have been added. There is much new embryologic material on mammalian embryos. Obviously the author has been encouraged to do this because of the growing interest in congenital anomalies and their surgical correction.

The new Paris nomenclature has been adopted throughout the book and instead of anterior and posterior we find dorsal, ventral, rostral, etc. References to original articles have been included in newly written parts of the text, while references at the end of a paragraph may at times refer not to the content but rather to more detailed and extensive accounts in which the reader can find further information. There is also a list of references at the end of each chapter and details of anatomy not included in the text can readily be obtained by following these references.

There is little doubt that any specialist will feel somewhat disappointed at the abbreviated way his specialty is dealt with, But this is a book for students not specialists and when viewed from this vantage point it is excellent and well deserves its wide success.

MEDICAL PHYSIOLOGY 11TH EDITION by Philip Bard, Editor. C. V. Mosby Co., St. Louis, Mo., 1,339 pp., $16.50.

Reviewed by DENIS S. O'CONNOR

The thought expressed by some medical leaders of the present day to the effect that doctors should be required to pass examinations periodically to retain the privilege of practicing medicine while not likely to be attained in any near future, does cause one to wonder how the medical graduate can possibly keep abreast of all the present day rapid developments in diagnosis and treatment.

No one in the active practice of medicine can fail to absorb some of the knowledge to which he is exposed by contact with other doctors, attendance at medical meetings and perusal of some of the voluminous literature which crosses his desk. But, how to evaluate this information is the problem.

Probably nothing would be more valuable than a clear understanding of human physiology and while everyone who has gone through medical school has had a good grounding in physiology those of us who are in the twilight of our medical careers realize the physiology of today is a far cry from that which we studied many years ago and yet unless we have kept abreast of the phenomenal advances in our knowledge of the functioning of the human machine we are hardly in a position to intelligently evaluate the many new therapeutic substances appearing on the market as regards their ability to help or harm our patients.

Surgery, which in the earlier days was an exercise of mechanical skill and later, a practical application of pathology, is now dominated by a thorough understanding of physiology.

Physiology, therefore, as a rapidly advancing body of knowledge should be one of the basic subjects of which the practitioner must be cognizant.

It could hardly be expected that the average doctor could profit from lectures on basic physiology without prior reading to familiarize himself with the language which is peculiar to the subject and if the doctor is to keep abreast of the subject, whether he is obliged to pass an examination or not, he must read.

This textbook by sixteen international authorities which has gone through eleven editions needs no review to evidence its worth. But, it is well to know if one is considering the purchase of a modern work on physiology, that it is written in easily understood language and a sharp, non-fatiguing type. The nine main subjects—circulation, body fluids, alimentary tract, metabolism, respiration, endocrine glands, neuromuscular system, central nervous system and special senses are sub-divided to make up seventy-two chapters. To the medical man who is really interested in medicine physiology today, even if it had no practical value, would make fascinating reading, but it does have practical value as well and a doctor cannot help being a better doctor if he is basically grounded in physiology.

CLINICAL HEMATOLOGY by Maxwell M. Wintrobe, M.D. Lea & Febiger Co., Philadelphia, Pa., 1961, 1186 pp., $18.50.

Reviewed by ROY BARNETT

This outstanding work is now in its 5th edition. Much has been extensively rewritten and added since the 4th (1956) edition. There is important new information in the following fields; metabolism and control of cell maturation in the bone marrow; kinetics of erythrocytes, leukocytes and platelets; inheritance of blood disorders, chemistry and metabolism of erythrocytes; abnormal hemoglobins; nomenclature of coagulation and bleeding disorders and methods for studying them; blood groups including rare and public antigens and secretors; indications for transfusion and effects of massive transfusion; pathogenesis of macrocytic anemias; effects of ionizing radiation on blood and marrow; antibodies and blood enzymes in hemolytic anemias; treatment of idiopathic thrombocytopenic purpura and leukemia; macroglobulinemia and certain other rare blood disorders. There is also new technical data on sex chromatin, alkaline phosphatase in leukocytes, techniques of differential, eosinophil and platelet counting, electronic cell counters and the Schilling test. Posterior iliac bone marrow aspiration, which this reviewer favors, is appropriately illustrated.

Certain improvements have been made in the easier-to-read two-column format and in the partial replacement of idealized drawings by photomicrographs. For some reason the black and white figures made from the same plates are much sharper than in the previous edition.

There are certain criticisms warranted. The proof-reading is poor and there are many typographical errors inappropriate to an important work. A few figures have lost even historical interest and could well be jettisoned; these include a comparator block for icterus index determination and figures of Arneth's long abandoned leukocyte classification. There is no mention of the practical difficulties in use of the Copper Sulphate method for hemoglobin and specific gravity; these difficulties have been a major problem in the Connecticut Blood Program. The author recommends fasting blood donors for six hours, a barbarous and useless practice. The recommended cytologic method for gastric cells has been superseded by the better method of Rubin and his co-workers. Use of the Coombs cross-match, widely practiced today, is scarcely considered. As a final criticism Dr. Wintrobe's statistical terminology could use considerable simplification; his casual leaps from co-efficient of variation to standard error to mean error to probable error, and from precision to accuracy can lead only to confusion of the average reader. Although it would be too much to expect all authors to use simple comparable or identical terms, perhaps Dr. Wintrobe could use such terms when paraphasing.

Despite these minor faults this book stands out as an indispensable tool for internists, pathologists and hematologists. Anyone thoroughly familiar with this material would be extremely well informed in hematology.

YOU'LL HEAR ABOUT . . .
Anovulatory Agents
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ANNUAL MEETING
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May 3, 4, 1962
Statler-Hilton Hotel, Hartford

IMPORTANT NOTICE

Proper Signing Of Prescriptions

The attention of all members of the Society is called to the following:

"A 'prescription,' by strict definition, is a physician's written order to a pharmacist for medicinal substances for a patient. It includes directions to the pharmacist regarding the preparation and to the patient regarding the use of the medicine. In reality, however, a prescription is infinitely more than can be simply defined. It is a summary of the physician's diagnosis, prognosis, and treatment of the patient's illness. It brings to a focus on one slip of paper the diagnostic acumen and therapeutic proficiency of the physician. De Freese v. U.S., C.A. Ga., 270 F. 2d 730, 734."

Words & Phrases, Volume 33 (1961 Cumulative Annual Pocket Part) Page 92.

Each prescription should be individually written and signed by the physician. It is our opinion that this precludes the use of prescriptions containing a photostat of the medicine prescribed and a photostat of the physician's signature.

Raymond J. Cannon
Assistant Attorney General

February 9, 1962

Vote of the Joint Medical - Pharmaceutical Conference Committee, in meeting assembled on February 8, 1962, at the Waverly Inn, Cheshire, Connecticut.

The Joint Connecticut State Medical Society-Connecticut Pharmaceutical Association Conference Committee unanimously goes on record that any prescription with a reproduced signature of the practitioner licensed by law be considered unethical and contrary to public health and safety.

NICHOLAS W. FENNEY
Secretary

Joint Medical
Pharmaceutical Conference
Committee

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18th ANNUAL MEETING

Woman's Auxiliary To The Connecticut State Medical Society

STATLER HOTEL, HARTFORD

Thursday, May 3rd, 1962

3:15 P.M. Registration.
3:30 P.M. Business Meeting.
6:00 P.M. Cocktails and dinner meeting with the Connecticut State Medical Society.
Speaker: Edward B. Annis, M.D.

Health Careers

More than ever before, the necessity of attracting intelligent and capable students into Health Careers is of prime importance.

Last fall the Connecticut State Medical Society's Health Careers Committee met with representatives from the Society and the Auxiliary at which time statistics on inquiries by students about careers were reported for the 1960-1961 school year. Four hundred forty-three inquiries were received as follows:

Nursing	121
Physician	50
Dietitian	19
Med. Rec. Lib.	12
Pharmacy	22
X-Ray Technician	27
Medical Technician	59
Practical Nurse	2
Public Health and Dentist	59
Occupational Therapy	11
Physio Therapy	34
Dental Hygienist	2
Medical Secretary	73

In regard to scholarship help 191 felt they needed it, 162 replied they did not need it, while 90 gave no reply. These figures came from juniors and seniors in high schools. The Auxiliary sponsored programs were held in approximately 97 schools.

Some delay has been met in compiling a new Health Careers booklet for High School Guidance Counselors but will be available for their use during the next school year. Considerable material has been requested by schools this year and has been sent to them.

The following Auxiliary members are workers for the 1961-1962 Health Careers program:

FAIRFIELD COUNTY—Mrs. John A. Bucciarelli, chairman; Mrs. R. F. Renand, Mrs. George Genauracos, Mrs. Robert Russo, Mrs. T. Smith McLean, Mrs. Victor Machcinski, Mrs. Benjamin Epstein, Mrs. George Mandl, Mrs. T. L. Ippolito, Mrs. Charles Sheard, Mrs. James L. Porter, Mrs. Edward S. Breakell, Mrs. Walter Richar, Mrs. Ralph Tella, Mrs. John P. Gens, Mrs. Michael Yoburn, and Mrs. John W. Jovell.

HARTFORD COUNTY—Mrs. Zoltan P. Hervey, chairman; Mrs. Edward Zyla, co-chairman; Mrs. William B. Brewster, Mrs. Harvey Sirota, Mrs. Herbert Snyder, Mrs. Louis Tonker, and Mrs. Irving Waltman.

LITCHFIELD COUNTY—Mrs. Neil Russo, chairman; Mrs. Daniel Samson, Mrs. Gerald Baker, and Mrs. A. Rocke Robertson.

MIDDLESEX COUNTY — Mrs. Charles W. Chace, chairman; Mrs. Arthur McDowell, Mrs. W. Raymond James, Mrs. Louis Soreff, Mrs. Benjamin Shenker, Mrs. W. J. Vince, and Mrs. Stanley Alexander.

NEW HAVEN COUNTY—Mrs. Raymond Zagraniski, chairman; Mrs. John Goetsch, Mrs. Dana Blanchard, Mrs. Wilbur Moore, Mrs. Donald Beckwith, Mrs. Robert Greenhouse, Mrs. Joseph D'Esopo, Mrs. Anthony Cipriano, Mrs. Joseph Bruno, Mrs.

J. David McGaughey, Mrs. Robert Westen, Mrs. Bernard Swan, Mrs. Edward P. Allen, Mrs. Frederick Kessler, Mrs. Henry Caplan, and Mrs. Samuel Blank.

Windham County — Mrs. Andrew C. Laakso, chairman; Mrs. Harvey Grimsell, Mrs. John Woodworth, Mrs. Rudolf Klare, Mrs. Sherman Waldron, Mrs. Moses Margolich, Mrs. Stanley Weigel, and Mrs. Murray Z. Rosenberg.

Art Exhibit

The Physicians' Annual Art Exhibit will be held in conjunction with the annual meeting of the Connecticut State Medical Society on Wednesday, May 2; Thursday, May 3, and Friday, May 4, 1962 at the Hotel Statler in Hartford.

Pictures will be received at the Hotel Statler on Sunday, April 29, 1962 between 11 and 1 o'clock. We hope that many auxiliary members, and their families will plan now to enter this show. The exhibit will be staged and judged on Wednesday, May 2nd by a jury of three professional artists. All works must be removed on Friday, May 4, between 4 and 5 p.m.

This year the exhibit will be hung in the same room with the commercial exhibits which will give everyone attending the meeting a chance to enjoy it.

Memorial Scholarship Fund
Woman's Auxiliary To The Hartford County Medical Association

"To give of oneself is to give of the greatest measure." For the members of the Woman's Auxiliary to the Hartford County Medical Association, in supporting their scholarship fund, it has meant just that. Since 1948, when the fund was established, thirty-four young men and women interested in nursing or medical careers have known where to turn for that helping hand. To date over $26,000 has been given in scholarship aid to these young people.

Many ways have been used to raise this money, including rummage sales, dances, card parties, all kinds of at-home parties and voluntary contributions contributed annually by the members.

The fund itself is administered by three trustees who serve on a rotating basis for three years, beginning as secretary, then treasurer, and finally as chairman.

Applicants from Hartford County are given preference. Interviews are held in spring and early summer as a general rule.

The trustees who are serving this year are: Mrs. Gilbert W. Heublein, secretary; Mrs. George J. Rosenbaum, treasurer; and Mrs. Nicholas A. Marinaro, chairman.

THE CONNECTICUT PHYSICIANS ART ASSOCIATION 1962 EXHIBIT

May 2, 3 and 4 Hartford
Judges for Connecticut Physicians
Art Exhibition — Hotel Statler

Irving Katzenstein, Hartford painter. Member of the Connecticut Watercolor Society and the Connecticut Academy of Fine Arts.

Gail W. Martin, Instructor of painting and history of art, at the Hartford Art School, University of Hartford.

Mrs. Ethel Stauffer, Hamden — painter and teacher. President of the New Haven Paint and Clay Club. Member of the Connecticut Academy of Fine Arts.

Additional entry blanks and information may be obtained from:

Mrs. Ernest Rosenthal
177 Pine Street
West Hartford, Connecticut

For additional information see page 219, March Journal.

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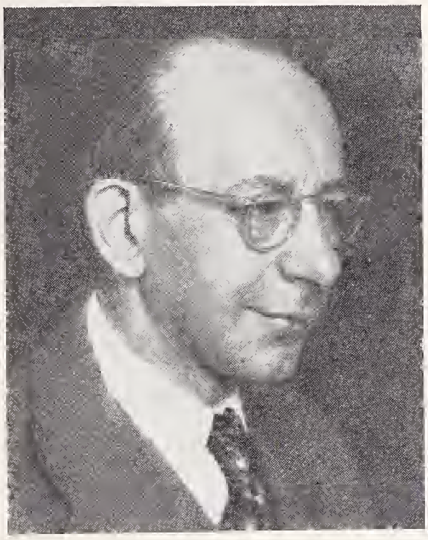
OBITUARIES

Rudolf Blau, M.D.

1896 - 1962

The community and the many friends of Dr. Rudolf Blau were saddened by the announcement of his death on January 19, 1962.



Dr. Blau was born and educated in Berlin, Germany. He graduated from the medical school of the University of Berlin in 1920 after having served with the medical corps of the German Army during World War I. He came to the United States with his family in 1938, and after being licensed to practice in New York State and Connecticut, established his home and office in Waterbury.

His practice of medicine was of the highest calibre, he enjoyed a successful career and made a host of friends whom he frequently amused with his subtle humor and patient, expressive personality.

He was on the courtesy staff of St. Mary's Hospital and attained the rank of associate attending physician in medicine and cardiology on the staff of the Waterbury Hospital. His special interest was cardiology in which field he published a paper on "Ballistocardiography."

He was a member of the New Haven County Medical Association and the Connecticut State Medical Society and a Fellow of the American Medical Association. Dr. Blau was also a member of the Waterbury Heart Association, Connecticut Heart Association, and American Heart Association.

It is with a profound sense of loss that we note the passing of Dr. Rudolf Blau whose intense medical interest, subtle humor and friendly unassuming manner will be missed by his patients, friends and medical colleagues.

C. H. Cole, M.D.

W. Lee Weadon, M.D.

1882 - 1961

Dr. William Lee Weadon was born in Bluemont, Virginia on October 8, 1882. He was a graduate of The Medical College of Virginia. He began his practice in that state in 1905, coming to Bridgeport seven years later.

Dr. Weadon joined Dr. John Winthrop Wright in practicing surgery at The Galen Hospital on Myrtle Avenue. The hospital merged with the Bridgeport Hospital in 1924 and Dr. Weadon became a staff member. He practiced medicine and surgery for 52 years and retired at the age of 75.

His associates considered him one of the foremost surgeons in this area. He was a keen diagnostician and a very rapid and excellent operator. He was one of the first in his field of medicine to use X-ray extensively for both diagnosis and treatment. His colleagues frequently called him in consultation and his advice was considered excellent. He was among the first to advocate early ambulation following surgery. He was a pioneer in stressing the importance of early diagnosis of cancer and he was seriously interested in the treatment and follow-up care of these cases. He never asked if anyone could pay him for his services. His one thought was always the care of the patient and a speedy recovery. Dr. Weadon's reputation for generosity regarding fees is a well known fact to thousands of his former patients as well as his associates. He gave financial assistance to many young men in order that they could go to college and medical school and then helped them get located and recommended them to positions without hope of ever being repaid. He had no children of his own and he said this was his way of repaying for the privileges he had received in the practice of his chosen profession. He truly believed and practiced the Hippocratic oath. All of us who were fortunate enough to be associated with him benefited by his guidance and influence.

Dr. Weadon was a diplomate and one of the founders of the American Board of Surgery, a Fellow of the American College of Surgeons, a member of the city, county, and state medical associations, and the A.M.A. He was a past President of The Bridgeport Medical Society.

Dr. Weadon's only survivor is his wife, the former Frances Bowen.

J. Grady Booe, m.d.

Doctor's Office

Bert B. Berlin, M.D., announces the opening of an office for the practice of urology in association with Dr. Harold A. Lear and Dr. Walter A. Schloss at 64 Garden Street, Hartford.

John C. Brigham, M.D., announces the opening of an office for the practice of pediatrics at 9 Kaynor Drive, Waterbury.

Frank G. Buckman, M.D., announces the removal of his office from 576 Farmington Avenue, to 609 Farmington Avenue, Hartford.

Nicholas A. Coassin, M.D., announces the opening of an office for the practice of surgery in association with Dr. Leonard M. Rapoport at 75 New Haven Avenue, Milford.

Nassed Davoodzadeh, M.D., (better known as Dr. David) announces the opening of an office for the general practice of medicine at 330 Park Road, West Hartford.

Edward Gerber, Jr., M.D., announces the removal of his offive from 73 Meadow Street to 152 Meadow Street, Naugatuck.

Charles Lanzieri, M.D., who maintains a practice in Waterbury, announces the opening of an office for the practice of obstetrics and gynecology at 97 Farview Avenue, Wolcott.

Wallace B. Lebowitz, M.D., announces the opening of an office for the practice of cardiology at 2660 Main Street, Bridgeport.

James T. Mooney, M.D., and James J. Doheny, M.D., announces the removal of their office from 314 Elizabeth Street to 445 New Haven Avenue, Derby.

Edmond B. Raheb, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 14 center Street, Danielson.

John W. Rhinehart, M.D., announces the opening of an office for the practice of psyciatry at 33 Main Street, Newtown.

In Memoriam

Ematrudo, Frederick R. — Hamden; Eclectic Medical College, 1921; practiced general medicine in Hamden for 40 years; was formerly a member of the staff at the Hospital of St. Raphael, New Haven and a police surgeon in Hamden; in recent years his practice had been curtailed by ill health; died at the Hospital of St. Raphael, February 22, age 64 years.

McMahon, George W. — New Britain; Tufts Medical College, 1937; Dr. McMahon was a practicing physician in New Britain for 25 years; he formerly served as a resident physician at St. Mary's Hospital in Waterbury and New Britain General Hospital; he was a former president of the New Britain Medical Society; Dr. McMahon was a member of St. Joseph's Church, Daly Council, Knights of Columbus, and Bishop Tierney Assembly, Fourth Degree, Knights of Columbus; he served as senior medical officer in World War II with the Seabees on the Pacific Island of Samar; died at his home February 28 following a long illness, at the age of 54 years.

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Connecticut Medicine

Connecticut State Medical Journal

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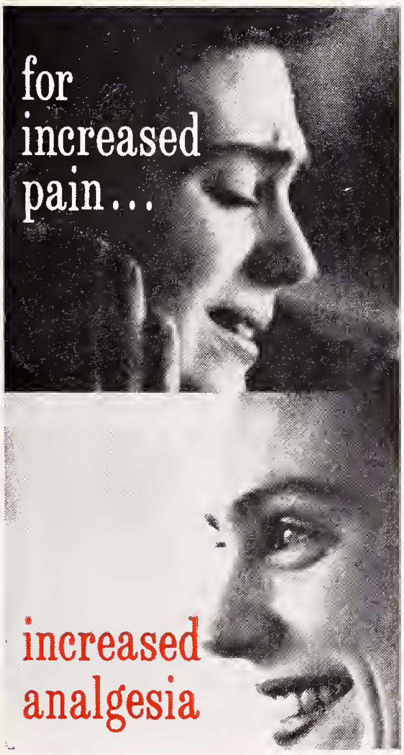

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*REFERENCES: (1) Roseman, E.: Neurology **11**:912, 1961. (2) Bray, P. F.: Pediatrics **23**:151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: M. Clin. North America **42**:317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) Ibid.: Postgrad. Med. **20**:584, 1956. (7) Merritt, H. H.: Brit. M. J. **1**:666, 1958. (8) Carter, C. H.: Arch. Neurol. & Psychiat. **79**:136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.*

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Connecticut Medicine

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(This is the second of a two-issue series on anesthesiology)

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Clyde Leroy Deming, M.D.

Born: Cornish, New Hampshire, August 18, 1885.

Bowdoin College, A.B., 1910; Yale School of Medicine, M.D., cum laude, 1915.

Post Graduate:
- Internship, New Haven Hospital, 1915-17
- Resident, Surgery, New Haven Hospital, 1917-19
- Instructor, Surgery, Yale School of Medicine, 1917-19
- Resident, Urology, Johns Hopkins Hospital, 1919-21

Professional Appointments:
- Assistant Professor of Surgery, Urology—1921-24
- Associate Clinical Professor of Surgery, Urology—1924-29
- Associate Clinical Professor of Urology, 1929-32
- Clinical Professor of Urology, 1932-55
- Emeritus Clinical Professor of Urology, Yale University School of Medicine, 1955-
- Attending Urologist, Veterans Hospital, Newington and West Haven, 1947-55
- Member, Connecticut Council, Department of Health, 1959-
- Consultant, Urology: Derby, Meriden, Willimantic, Norwalk and Portchester

Membership:
- New Haven City Medical Society
- New Haven County Medical Society
- Connecticut State Medical Society
- American Medical Association
- Long Island Medical Association (Hon.)
- New England Surgical Society
- American College of Surgeons
- New England Urological Association
- American Urological Association
- American Association Genito-Urinary Surgeons
- Clinical Society of Genito-Urinary Surgeons
- Western Urology Association (Hon.)
- Societe Internationale D'Urologie
- American Board of Urology

Offices:
- President, New Haven City Medical Association, 1958
- President, New Haven County Medical Association, 1959
- President, New England Urol. Association, 1935-37
- Secretary, American Urological Association, 1935-42
- President, American Urological Association, 1948
- President, American Association of G-U Surgeons, 1948
- President, Clinical Society of G-U Surgeons, 1951
- Chairman, Executive Committee of U.S. Section; Societe Internationale D'Urologie, 1948-

Contributions:
- One hundred articles to Urologic literature
- Contributor to Blumer's Bed Side Medicine
- Contributor to Campbell's Textbook—Urology

Clyde L. Deming, M.D.
President

New Frontiers In Anesthesiology

VINCENT WHITEHEAD, M.B., B. CHIR.
ARTHUR S. KEATS, M.D.
Houston, Texas

> *"Reade not to contradict and confuse; Nor to Believe and Take for Granted; Nor to find Talk and Discourse; but to weigh and Consider. . . ."*
> Francis Bacon

BACON'S dictum applies with special force to this presentation which presumes to speculate on future developments in anesthesiology. Although an old clinical science, anesthesiology remained for too many years complacently in its accustomed groove, adequate for the demands of surgeons, but also limiting surgical advancement by its own deficiencies. In the past two decades, anesthesiology has shared with the other clinical sciences in the enormous new developments which have arisen from the advancement of basic science and technology. As a result, the clinical practice of anesthesiology has changed dramatically and through these same forces, this change will continue. Bearing in mind Bacon's strictures, we have reviewed some directions of current research and speculated on the directions of future changes.

New Anesthetic Agents

A search for the ideal anesthetic agent has continued and intensified. It seems increasingly unlikely that it will ever be found, as there exists no general agreement as to the properties of this ideal agent. Further, certain generally agreed desiderata of an ideal agent are mutually exclusive; for example, it now seems inconceivable that an agent which provides profound muscular relaxation will not also depress respiration or that a potent agent would not also be unsafe in terms of overdosage. A more realistic approach has been in terms of certain limited objectives: that the agent be inexpensive, pleasant, potent, non-flammable and with minimal cardiac, renal or hepatic effects.

In work extending over many years and directed to this end, Krantz and his colleagues systematically investigated many new volatile hydrocarbons as anesthetic agents, especially the ethers. Although most of these never reached clinical trial because of their toxicity, two are worthy of mention. One interesting compound studied by this group, hexafluorodiethyl ether, proved to be a convulsant instead of an anesthetic in animals and man. It was subsequently used in convulsive therapy of psychotics with apparent success in a preliminary trial.[1] Of obvious significance here is the relationship between chemical structure of these compounds and convulsive or anesthetic activity, analagous to the chemical differences between the anesthetic and convulsive barbiturates. Observations as these are fundamental to the ultimate understanding of the mechanisms of anesthesia or indeed of the action of any drug.

A second contribution from Krantz's laboratory was trifluoroethylvinyl ether (Fluomar) which is now in clinical use.[2] This contribution, however, was overshadowed by that of Suckling[3] and Raventos[4] who synthesized and realized the potentialities of halothane (Fluothane). Although similar to chloroform in many ways, halothane is the first inhalation anesthetic to have received wide acceptance since the introduction of cyclopropane in 1934. Intensive screening of other fluorinated and

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non-fluorinated hydrocarbons has been undertaken by others during the past 5 years. As yet, none has achieved the success of halothane even though it is still far from the ideal anesthetic. However, there is every reason to believe that improved compounds of the same general nature, of which there is a myriad, will be brought forward, and we may confidently expect progression in this field. One can even conceive of the development of a solid state anesthetic which would open many new possibilities in the design of anesthetic equipment.

Several years ago much interest was aroused in the potentialities of certain steroids as anesthetic agents given by the intravenous route. The early product, hydroxydione, proved to be unsatisfactory primarily because of venous irritation and thrombophlebitis; otherwise this agent produced admirable light anesthesia. That a steroid can produce anesthesia was in itself a startling observation and undoubtedly stimulated further investigation in this direction.

Continuing investigations of the barbiturates as intravenous anesthetic agents has been directed toward finding an agent superior to thiopental (Pentothal). Thioamylal (Surital), methitural (Neraval) and methohexital (Brevital) have been the most intensively studied but have not found wide acceptance. The demonstration by Brodie and his colleagues[5] that the short lived action of thiopental was due to rapid fat and tissue uptake and not its rapid metabolism has pointed the way for future development here. What is desired is a quickly metabolized intravenous anesthetic and not one with a greater affinity for tissue accumulation.

The most recent and radically different approach has been in the renewed interest in electronarcosis. This concept, originally investigated by Russian workers and applied with success to animals and man, has been tested in this country and the Russian work confirmed. This technique has obvious attractions for application in military field hospitals where bulky anesthetic equipment is a disadvantage. However, much development is yet necessary. Apart from problems in the design of the equipment, demanding precise control of waveform and voltage, it is also conceded that conventional anesthetic care is required not only to monitor and support vital functions, but also to provide an airway, ventilation by usual methods, and muscular relaxation. Despite these limitations, electronarcosis may, with development, produce techniques of wide clinical application.

The use of muscle relaxants has increased steadily since the introduction of curare fifteen years ago. With experience, the realization has grown that no one muscle relaxant now available is ideal. The closest is succinylcholine with its prompt profound action and rapid degradation. Its great disadvantage is that no pharmacological antidote exists. If the natural detoxifying mechanism for succinylcholine is in abeyance or if there is an abnormal end organ response, the patient remains apneic for long periods. Although uncommon, this situation occurs sufficiently often to give rise to disquiet. Curare has clinical disadvantages, but these tend to be outweighed by the availability of a complete antidote in the cholinesterase inhibitors, such as neostigmine. The search continues for a relaxant which combines the advantages of both without their drawbacks. New compounds now undergoing investigations, hexamethylene-1, 6-bis-carbaminoylcholine bromide (Imbretil) and toxiferine, seem to offer no advantages. Continuing basic research on nerve gases and their antidotes may well lead to the elaboration of a more ideal neuromuscular blocking agent.

The Anesthetized State

The most remarkable change which has occurred in the everyday practice of anesthesia in recent years is that the patient is no longer rendered deeply asleep with ether or cyclopropane with muscles relaxed and reflexes obtunded. Today, more likely he is lightly asleep with relaxation obtained by specific drugs and his reflex responses selectively depressed. The net effect is the same, a quiescent oblivious patient with ideal surgical conditions. But what is the relationship of this new state to the classical concepts of depth of anesthesia? Is the patient "anesthetized"? Considerable speculation has arisen as to the nature and physiology of this anesthetic sleep and its relationship to both classical anesthesia and to natural sleep. Simple deafferantation of the brain is an obvious but inadequate explanation. Studies of the standard EEG are not helpful; while changes in the EEG in deep anesthesia are obvious, the pattern in very light anesthesia is only little different from that of natural sleep.

The outstanding contribution of Moruzzi and Magoun[6] in 1949 markedly changed previous concepts of the unconscious state and provided a reasonable working hypothesis. They showed that repetitive excitation of the reticular formation of the brain stem induced EEG arousal. Further they showed that loss of consciousness was more likely to result from blockade of impulses from the reticular formation to the higher centres rather than blockade of the well recognized spinal sensory paths. Studies of the reticular formation were combined with examination of the cortical EEG response to peripheral stimuli and it was shown that the reticular formation was particularly vulnerable to anesthetic agents. In the awake subject the cortical response to stimuli mediated by the classical sensory pathways was followed in 8-12 msec. by a second response mediated by the more slowly conducting reticular formation. This second response was extremely vulnerable to barbiturates narcosis; with deepening narcosis a later secondary response became manifest, 80-100 msec. after the primary. This was shown to be mediated by central nonspecific pathways and was blocked by the intact reticular formation. A further response peculiar to light anesthesia is the "K" response, confined to the EEG tracings taken from the vertex and appearing only in very light narcosis and in natural sleep when evoked by peripheral stimulation.

The effect of all anesthetic agents on the evoked responses from the cortex was essentially similar. However, when "recruiting responses" were recorded from the thalamus near the reticular formation, marked variations occurred with different agents. They are, for example augmented by barbiturates and chloralhydrate, but depressed by ether.

The precise significance of these changes is as yet unknown, but it is theorised that there is an effective balance between excitation and depression of the brain maintained by the reticular formation. The various components of excitation and inhibition are now amenable to study by modern techniques. This balance is changed in a specific way by anesthetic agents. The differing modes of action of individual anesthetic agents may be explained on the basis of their selective modification of the component parts of the balance system. Obviously, this is yet a primative explanation. However, this direction of inquiry promises to elucidate the effect of hyperventilation on the anesthetic state, the central nervous system effects of curare drugs, and perhaps the mode of action of the analgesics.

The Concept Of Homeostasis

During the remarkable evolution of clinical anesthesia to the current sophisticated polypharmacy, the prevailing philosophy of anesthetic administration was that bodily homeostasis should be preserved as far as possible within the requirements of the surgical procedure. As surgical ambitions have increased, especially in neurosurgical and cardiovascular fields, the anesthesiologist has had to keep pace by elaborating techniques which make these incursions possible. All have involved departures of ever increasing magnitude from the physiologic normal. Simple departure from homeostasis, such as apnea, profound muscle relaxation and mild hypothermia, are now commonplace and we no longer regard them as inconsistent with the prevailing philosophy. However, the more complex and dramatic disorganizations such as hypotensive anesthesia, profound hypothermia and extra-corporeal circulation, all point the way to a system of anesthesia that boldly departs from homeostasis and this compels a reexamination of our philosophy. Life has been sustained for prolonged periods in exsanguinated animals whose blood has been replaced with dextran. By placing such an animal in a high oxygen atmosphere under pressure, adequate oxygen transport and tissue oxygenation was effected entirely by the oxygen in physical solution in the dextran vehicle.[7] In view of existing departures from homeostasis and the directions of future inquiry, we may question the concept of homeostasis in clinical anesthesia as a limiting one in terms of development of new anesthetic systems. An opposing theory, i.e. deliberate departure from homeostasis, would have to be based on more knowledge than is currently available of the limits of physiologic trespass that are tolerable yet reversible in man and these limits defined for each organ system. Much work is in progress in these directions particularly in aviation and space medicine laboratories. We believe that such data will inevitably influence our philosophy and our anesthetic techniques in the not too distant future.

New Drugs For Anxiety And Pain

Anxiety is a natural and intense emotion in the preoperative patient. Much of this apprehension can be allayed by the anesthesiologist's preoperative visit. Most commonly, the major reliance has been placed on drugs—especially the narcotics, the barbiturates and the phenothiazines. Even though considerable success attends the use of these drugs, and anxiety is replaced by sleep, euphoria or amnesia, there is general discontent among anesthesiologists with the price paid in terms of side actions. Similar discontent exists with the use of currently available narcotics for postoperative pain, barbiturates for sedation and phenothiazines for anxiety or nausea. The search for new compounds in these categories is so vigorous and the products so numerous as to preclude meticulous evaluation of each. Complete success is yet to be achieved; but in certain directions, significant improvement is already evident.

Many narcotics have been synthesized in recent years in an effort to find the ideal narcotic, one which produces potent analgesia as an isolated action. The limited objective has been to find a compound which produces potent analgesia but without one of the major side actions of morphine or meperidine i.e. respiratory or circulatory depression, sedation, addiction, nausea, vomiting and constipation. Despite the enthusiasm which usually attends the introduction of new compounds, thus far all have failed to achieve even the limited objective when studied by an adequately controlled clinical trial. Meperidine (Demerol) alphaprodine (Nisentil), levorphanol (Levo-Dromoran), oxymorphone (Numorphan), anileridine (Leritine) phenazocine (Prinadol) and priminodine (Alvodine) have all ben studied and proven to possess no advantages over morphine. However, two new developments promise some success. Firstly, nalorphine (Nalline), a narcotic antagonist, has been shown to produce analgesia equivalent to that of morphine. It has also been shown to be non-addicting since it will neither support established narcotic addiction nor produce primary psychic or physical dependence. It would then seem that nalorphine is a potent non-addicting analgesic. However, nalorphine has its own side action liability; it produces bizarre psychic effects of such severity as to preclude its use as a clinical analgesic. Other narcotic antagonists are currently being investigated in the search for a powerful analgesic, unencumbered by either addictive or psychic side effects.

A second promising development has been the demonstration of a quantitative dissociation between analgesic potency and side action liability in some compounds studied in man. In past years all narcotics studied have been shown to produce equal respiratory depression sedation, nausea and vomiting, and addictiveness when given in equivalent analgesic doses. Recently two compounds have been shown to produce more respiratory depression than morphine for equivalent degrees of analgesia (phenazocine and 4-acetoxy-3-methyl-1-(phenylethyl)-4-0-tolylpiperidine.) Although this is clinically undesirable, it does suggest that a quantitative dissociation in a clinically favorable direction i.e. good analgesia with less respiratory depression, is possible among compounds of the type currently studied.

In this regard a "pure and total analgesic" has been sought after for use as an anesthetic agent. One such compound subjected to clinical trial was 1-(1-phenyl cyclo hexyl) piperidine (Sernyl). Given intravenously it produced profound analgesia and amnesia for up to 24 hours without respiratory or cardiovascular depression. However, emergence from such anesthesia was not infrequently marked by mania or even hallucinations. In a few patients the drug failed to produce adequate analgesia even in large dose. Obviously this drug is far from ideal, but the approach is imaginative and promising.

Among the hypnotics, there has been a vigorous search for a barbiturate substitute, with emphasis on "non-barbiturate hypnotics". The newly developed non-barbiturate drugs such as glutethimide (Doriden) methylprylon (Noludar), methylparafynol (Dormison), ethchloroynol (Placidyl) all have the same drawbacks as conventional barbiturates. When given in sufficient doses to produce sleep, they are associated with hangover effects; they are liable to abuse by barbiturate addicts. When taken in excessive dose, the clinical picture of barbiturate intoxication with respiratory and circulatory depression develops. Thus, they remain dangerous for the careless and attractive to the would-be suicide.

In contrast to the lack of progress among the hypnotics there has been significant improvement among the phenothiazines since the introduction of promethazine and chlorpromazine. By alteration in chemical structure, it has been possible to develop new compounds possessing quantitatively different proportions of their major activities. Phenothiazines have been developed which are primarily antiemetic, tranquilizing, antipruritic, antihistaminic and sedative. It has also been possible to suppress or even eliminate some of the severe side actions of phenothiazines such as hypotension, jaundice and extrapyramidal stimulation. Their role in clinical anesthesia is yet to be established. Whether they are better than the conventional hypnotics, whether antiemetics should be routinely used with modern anesthetic techniques and whether the tranquillity and stoic indifference of narcotics can be reproduced by the phenothiazines, the next decade will decide.

Obstetrical Anesthesia

Progress in this field has been slow. This failure cannot be attributed to the obstetricians whose efforts in prenatal care, obstetrical techniques and even in anesthesia and analgesia have produced the remarkable record of maternal and infant mortality enjoyed in this country. Modern obstetrics has reduced intrapartum injury to an almost irreducible minimum and has made the ill effects of anesthesia on the mother and infant more apparent. Thus anesthesia continues to be among the first five causes of maternal mortality. The lack of progress lies more heavily with anesthesiologists, so few of whom have had sufficient interest in the unique problems of the delivery room and neonatal nursery. It has been an unwillingness to depart from the relative order of the operating room to the irregular hours of the obstetrical suite that has held back progress in this field.

Currently this field is opening up due largely to the work of a small number of interested anesthesiologists. Their work essentially falls into three phases related to the birth process—first intrauterine physiology with emphasis on placental function and drug transmission; secondly the relationship of anesthesia and birth trauma to postnatal oxygen and acid base changes and thirdly the long term correlation of the status of the infant at birth with its later development.

Studies of the first phase demonstrated how closely changes in maternal blood gas levels are mirrored in the fetus and supported the clinically suspected importance of additional oxygen in the maternal inspired atmosphere. In particular it has been emphasized that maternal anoxia appears rapidly in the fetus and this may be critical if the placental mechanism is already compromised by infarction, prolonged labor or premature separation. Further the rapid transmission of drugs from the maternal to the fetal circulation has been documented. All the depressant drugs used in labor from the narcotics and barbiturates to the tranquillizers and anesthetics readily pass this barrier and exert similar depressant action on the fetus. However, one important exception has been demonstrated: at least two muscle relaxants, d-tubo curare and succinylcholine, do not cross this barrier in significant quantities when given in usual doses to the mother. This has important implications for the development of new techniques in obstetrical anesthesia.

James and his colleagues[8] have been interested in the second phase. They have convincingly demonstrated that the fetus may become profoundly anoxic during the second stage of labor and actual delivery, but that this situation may go undetected as the child rapidly loses the clinical signs of cyanosis on exposure to a high oxygen atmosphere. They have shown that a marked metabolic acidosis is incurred during this period and that this disturbance can persist for some time in the neonatal period, perhaps accounting for the development of the respiratory distress syndrome of the newborn. They believe that the pH of the fetal blood is a more important prognostic sign and index of anoxic fetal damage than is the oxygen saturation of the cord blood.

Apgar[9] has demonstrated the importance of grading and recording the status of the infant at birth and relating this grade to events surrounding birth such as anesthetic agents, analgesics given during labor and obstetrical complications. Reliable grading had hitherto been extremely difficult due to the subjective nature of the evaluation, with wide variation in individual observations. The "Apgar score" on the basis of respiration, heart rate, tone, reflex activity and color, provides a readily reproducible scale of neonatal vigor. This scale has ben widely adopted and proven useful in evaluating the effect of obstetrical practices on the newborn. Currently a nation wide long term study is underway in an attempt to correlate the Apgar score at birth with later achievement or handicap of the individual over the span of preadult life.

Instrumentation

Progress in anesthesia is derived from clinical research which depends primarily on the clinical application of concepts and principles derived from basic research. Viewed from today, the clinical research data obtained in the recent past seem to have been simple variables, simply measured and simply recorded. Much was done with no more than a sphygomanometer, gas analyzer, a stop watch, pencil and notebook. Current experimental concepts are not basically more complex than in earlier years. The data required to test their validity, however, usually requires simultaneous measurement of multiple variables which cannot be controlled in studies in man. This has led to the development of apparatus which continuously records such variables as pH, oxygen and carbon dioxide tensions, oxygen saturations together with pressures and flows through vessels or organs in an intact animal. We have only begun to exploit these continuous measuring devices in anesthesiology.

The electroencephalogrph, once an experimental apparatus has become so well developed that it is now in everyday clinical use. The experienced eye can extract much information from it, but much more remains hidden in complex wave forms which defy analysis or are too transitory to be appreciated. Electronic analysis of these exceedingly complex wave forms has begun to break them down into simpler components amenable to objective interpretation. Highly refined instruments borrowed from the laboratories of pure science now enable us to measure minute quantities of gases in mixtures as radioactive tracers and also to measure the absolute quantities of all the gases composing such mixtures. Equally important are the newer chemical assay techniques developed for the accurate determination of small amounts of compounds such as epinephrine, norepinephrine, d-tubo curare and succinylcholine in the blood.

With these techniques, the experimenter accumulates vast amounts of information and the problem of summarizing and interpreting these data becomes equally vast. The actual data manipulations may be simple in principle but overwhelmingly tedious in execution. Here the electronic computor now provides essential help in dealing rapidly with large amounts of data, summarizing them, and even providing interpretations previously lost because of prohibitive labor necessary for the complex calculations.

While it is true that for most surgery, the anesthesiologist of the future will require no more than his accustomed apparatus, for the more complex clinical situations, he will have at his disposal much more complete information as to the state and progress of his patient. Through the development of more compact, stable, and less expensive instruments, more monitors will become available for operating room use. The anesthesiologist will become concerned with physiological variables which were unmeasurable a decade ago. He will grow in his intellectual capacity and his patients will be benefited. Most importantly these instruments will facilitate research, as a more complete understanding of the bodily changes induced by anesthetics will be achieved only with instruments of the type described.

Expanded Horizons Of Anesthesia Services

The anesthesiologist is primarily a physician. It is natural, then, that his interest extends beyond the care of the patient in the operating room. He has the wit and the knowledge to envision the application of his techniques to patients in other situations, where his special skills and experience might apply. As the availability of anesthesiologists has increased, so have the areas of his activities as the natural expression of his broader interests. For example, radiologists have been intrigued with the possibilities of higher cancer cure rates when irradiation is undertaken while the patient is subjected to two or three atmospheres of oxygen pressure. This technique involved problems of apparatus, of oxygen intoxication and patient immobility. The anesthesiologist was uniquely qualified to deal with each of these and the initial successful use of this technique was accomplished in collaboration with an anesthesiologist.

In the newborn nursery, an anesthesiologist has suggested a promising method for dealing with respiratory distress of the newborn or hyaline membrane disease. Colgan[10] has treated an infant with increasing dyspnea, sternal retraction and progressive cyanosis by intubation and intermittent positive pressure respiration over a period of four days. In this way he was able to tide the child over a period in which death otherwise would have resulted from exhaustion and hypoxia. Further trial of this technique may decrease mortality from this medical enigma.

Further afield anesthesia has much to offer in problems of civil defence, particularly in resuscitation and in developing methods for handling mass casualties. It is notable that the complete revision of techniques of respiratory resuscitation of recent years came about primarily through the efforts of several anesthesiologists. The reintroduction of mouth to mouth artificial respiration as a technique usable by the mass of laymen is an advance of great significance.

In recent years, clinical pharmacology, once a poor cousin of internal medicine, has come into its own as a medical discipline. The anesthesiologist has a unique opportunity to contribute to this important area by conducting controlled clinical trials of drugs used before, during or after surgery. The anesthesiologist is unique in that he has large numbers of patients under his intensive personal care, with a diversity of disease or good health to select from, and ample opportunity to note drug effects without detriment to his patient. With an adequate experimental design, data as precise as those obtained in the pharmacology laboratory can be obtained in the operating room. Anesthesiologists have obtained such data on anesthetic agents, analgesics, hypnotics, antihistamines, neuromuscular blocking agents, drugs affecting metabolism, blood coagulation and acid base balance. With the continuing drug explosion, opportunities for investigations can only increase.

The readiness with which spontaneous breathing is suspended during modern anesthesia reflects favorably on the adequacy of the artificial ventilation which has been substituted for it. Respiration has been artificially maintained for months and even years in patients with bulbar poliomyelitis. With improved mechanical means, respiratory aids have been applied more broadly and more successfully. Improved ventilators have been used for crushed chest injuries, head injuries, postoperative respiratory insufficiency, chronic emphysema and in almost any situation in which respiratory insufficiency develops. Such technical advances have made possible extensive resections of lung tissue, heretofore thought incompatible with life. In such patients, oxygenation has been maintained for many weeks by mechanical means until compensatory emphysema of as little as one remaining lobe of one lung was sufficiently established for adequate independent respiration.

From the example of respiration and the success of extracorporeal circulation, it is tempting to join speculation on the use of artificial circulation for prolonged periods until circulatory compensatory mechanisms develop. For example, cardiac infarction, cardiac decompensation and shock may perhaps be treated by partial circulatory bypass techniques to tide the patient over a crucial week or ten days. Possibly an external cardiac pacemaker may be included in this system so that complete support of a failing heart can be provided for the critical days. Investigations in these directions are already in progress. It seems that the imaginative application of such techniques could lead to contributions by anesthesiology to almost every branch of medicine, especially those dealing with the circulatory and respiratory systems.

Conclusion

We have attempted to review the main lines of future development in anesthesiology. The scope of anesthesiology is wide and everwidening; further the pace of research both in anesthesiology and in related basic sciences is increasing steadily so that it is becoming evermore difficult to remain fully informed of new developments. Even so, this remains our duty, as improved techniques can only derive from a combination of acquired knowledge and natural inventivenes.

REFERENCES

1. Krantz, J. C., Jr., Esquibel, A., Truitt, E. B., Jr., Ling, A. S. C., and Kurland, A. A.: Hexafluorodiethyl ether (Indoklon) inhalant convulsant; its use in psychiatric treatment. J.A.M.A., 166: 1555, 1958.
2. Krantz, J. C., Jr., Carr, C. J., Lu, G., and Bell, F. K.: Anesthesia; anesthetic action of trifluoroethyl vinyl ether. J. Pharmacol. & Exper. Therap., 108: 488, 1953.
3. Suckling, C. W.: Some chemical and physical factors in the development of fluothane. Brit. J. Anaesth., 29: 466, 1957.
4. Raventos, J.: Action of fluothane—new volatile anesthetic. Brit. J. Pharmacol., 11: 394, 1956.
5. Brodie, B. B., Bernstein, E., and Mark, L. D.: The role of body fat in limiting the duration of action of thiopental. J. Pharmacol. and Exper. Therap., 105: 421, 1952.
6. Moruzzi, G. and Magoun, H. W.: Brain stem reticular formation and activation of the EEG. EEG Clin. Neurophysiol., 1: 455, 1949.
7. Boerema, I., et al.: Life without blood. J. Cardiovasc. Surg., 1: 133, 1960.
8. James, L. S.: The effect of pain relief for labor and delivery on the fetus and newborn. Anesthesiology, 21: 405, 1960.
9. Apgar, V.: A proposal for a new method of evaluation of the newborn infant. Current Res. Anesth. & Analg., 32: 260, 1953.
10. Colgan, F. J., Eldrup-Jorgensen, S., and Lawrence, R. M.: Maintenance of respiration in the neonatal respiratory distress syndrome. J.A.M.A., 137: 1557, 1960.

There are no logical recipes for making discoveries, still less for converting into lucky experimenters persons lacking the natural faculty of thinking logically. . . . As to geniuses it is known that they bow to rules with difficulty; they prefer to make them. As Concordet says "Those who are mediocre can be educated, but geniuses educate themselves."

Ramon Y. Cajal, *Precepts And Counsels On Scientific Investigation.*

Inhalation Therapy

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THE need to provide air for an individual who shows signs of asphyxia has been recognized since antiquity. Although oxygen is one of the most widely used therapeutic agents, too frequently it is used with little fundamental understanding of its physiologic effects on the individual in relation to the proper choice of technique for its administration. The delegation of authority to initiate therapy to personnel not familiar with the proper choice of equipment available nor appreciative of the hazards of insufficient respiratory exchange and accumulation of carbon dioxide is to be deplored. Such a circumstance is fraught with disaster. Inhalation therapy should not be instituted merely because it is readily available but instead the rationale for its use should be specific. Understanding of the basic pathologic process to be treated and the physiological alterations which will be produced by the administration of oxygen or other inhalational agents is essential.

The term asphyxia by derivation means, without pulse. Since the term anoxia by derivation means without oxygen, both fail to distinguish between the effects of oxygen deprivation alone and those with an inadequate oxygen supply in the presence of excessive tension of carbon dioxide. The term hypoxia was introduced by Wiggers[1] to indicate mild degrees of oxygen deprivation equivalent to the breathing of an atmosphere containing oxygen in 12 per cent concentration. For oxygen deprivation of a greater degree the term anoxia was intended to apply. This is an unsatisfactory convention forcing physicians to grope in a maze of semantics. The term hypercapnea has been introduced to indicate an excessive accumulation of carbon dioxide in the blood. Oxygen content refers to the total oxygen in the blood including the major portion carried in loose combination with hemoglobin and a small quantity existing in true solution in plasma, namely 0.3 cc. per 100 cc. of plasma. This latter portion is vital since the oxygen diffusing across capillary membranes and entering tissue cells is derived from this source. By providing an oxygen enriched atmosphere to an individual suffering from oxygen want the quantity of freely dissolved oxygen available to the tissues will be increased sufficiently, under favorable circumstances, to maintain life. Oxygen saturation referring to the amount of oxygen combined with hemoglobin is expressed as a percentage of the amount of oxygen that can combine with hemoglobin were it fully saturated in the normal adult, breathing ambient air. The value approximates 97 per cent. One gram of hemoglobin combines with 1.34 cubic centimeters of oxygen. The normal content of hemoglobin in 100 cc. of blood is 15 gms. When fully saturated the hemoglobin in 100 cc. of blood carries approximately 20 cc. of oxygen. The percentage saturation of hemoglobin with oxygen varies with the partial pressure of oxygen in the inhaled atmosphere. When the partial pressure of oxygen in the inhaled atmosphere is low less oxygen combines with hemoglobin. When hemoglobin reaches the peripheral circulation oxygen is released in the presence of an increased partial pressure of carbon dioxide. As oxygen is lost in the peripheral circulation the capacity of hemoglobin to combine with carbon dioxide is increased, thereby establishing a mechanism for transportation of carbon dioxide to the lungs where under normal circumstances it is released in expired air.

Causes And Symptomatology Of Hypoxia

A failure in the oxygen supply of an organism can occur due to a multiplicity of causes[2] including: (1) insufficiency of oxygen in the atmosphere at high altitudes where its partial pressure is low, (2) obstruction of the airway, (3) imperfect perfusion of gases in the lung allowing sub-oxygenated blood to reach the general circulation, (4) impaired transmission existing in the presence of severe anemia, diminished blood volume or diminished velocity of blood flow and (5) interference with the transfer of oxygen in the presence of edema or depression of cellular activity associated with profound anesthesia, barbiturate poisoning and alcoholism. A relative oxygen deficit may be created by an excessive demand by the tissue for oxygen associated with hyperpyrexia and in the presence of burns or hyperthyroidism.

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It is an over-simplification to state that the primary indication for oxygen therapy is cyanosis. Cyanosis occurs when 5 grams of reduced hemoglobin are in the circulating blood and indicates a real need for the administration of oxygen but Comroe[2] has shown that the evaluation of degrees of cyanosis will vary among critical observers all studying the same subject at the same time. The cape-like cyanosis indicative of polycythemia may not signify oxygen-want and in the presence of profound anemia there may be intense hypoxia without apparent cyanosis. A frequently observed response to oxygen-want is an increase in pulse and respiratory rates[1] but they are relatively late signs of hypoxia.[3] A mild degree of hypoxia will be evinced by restlessness, over-confidence, impaired judgment and dizziness. Moderate hypoxia may be surmised in the presence of anxiety, muscular fibrillation, twitching and incoordination, mental confusion and a marked increase in respiratory rate associated with air hunger. Severe hypoxia produces unconsciousness, convulsions, a decreasing rate of respiration with irregularity of rhythm and a slow full-bounding pulse associated with hypertension followed by a rapid thready pulse with hypotension. The final stage is associated with coma, respiratory arrest, circulatory collapse and death.[4]

Asphyxia neonatorum remains a frequent cause of death despite modern improvements in maternal and newborn care. A decrease of the fetal heart rate to less than 100 per minute during labor is an ominous sign. Administration of oxygen to the mother may improve the condition of the fetus. Rapid delivery may be indicated. Prystowsky,[5] recognizing that it is difficult to identify significant fetal distress during the second stage of labor, recommended the administration of oxygen to all mothers during delivery to aid the one baby in twenty needing it. Tranquilizers, sedatives and analgesics combined with anesthetic agents administered to women during labor and delivery may produce respiratory depression in a newborn infant. Effective administration of oxygen to the newborn is essential but may be extremely difficult in the presence of respiratory obstruction and atelectasis. Relief of upper respiratory obstruction is mandatory. The insertion of an endotracheal tube may be necessary to provide a clear airway for the administration of oxygen. It is desirable to control specifically the maximum pressure that is exerted endobronchially at less than 20 centimeters of water maintained for short intervals. Cardiac action may be improved by external sternal compression. The central nervous system of the premature infant is especially vulnerable to hypoxia but once primary resuscitation has been effected the concentration of inhaled oxygen in air should be limited to less than 40 per cent in order to protect against the hazard of retrolental fibroplasia.[6,7,8] It is indeed fortunate that mechanical devices have been developed to automatically mix air and oxygen in proportions adequate to relieve hypoxia and at the same time protect the infant against this dreaded disease. Maintenance of high humidity in the inspired atmosphere is desirable to prevent inspissation of mucus. Production of hypothermia in the newborn suffering from atelectasis is being investigated as a therapeutic measure aiming at a reduction of oxygen demand during the interval that may be required for expansion of the lungs.

In children an upper respiratory infection may be associated with tracheobronchitis. The syndrome is frequently complicated by the occurrence of croup. The child may be relatively afebrile but the condition can be complicated by hyperpyrexia associated with an increased consumption of oxygen. Laryngeal edema, with a tracheal tug in evidence indicating the presence of respiratory obstruction, warrants active and effective inhalation therapy. In an oxygen tent equipped to provide high humidity the production of fog within a temperature range of 68° to 74°F. has constituted remarkably effective therapy. The establishment of a tracheostomy is warranted to provide protection against the hazard of complete respiratory obstruction. Where there is the necessity for frequent aspiration of the trachea treatment in a fog room rather than in an oxygen tent is well worthwhile.[9] The concentration of oxygen inspired can be increased by delivering it through a plastic catheter of small caliber inserted into the tracheostomy tube. With modern methods of therapy the outcome of upper respiratory infection associated with croup should seldom be fatal, but the treatment of an overwhelming tracheobronchial infection with the child exhibiting a pallid apathetic appearance is to be greatly feared because the mortality is high within the first few hours of illness. Since the cause of this syndrome is unknown and the mechanism of demise is not understood it is hoped that by further research and investigation preventive measures and effective therapy may be established.

Older children and adults are subject to bronchiolar muscular spasm and the obstructive dyspnea associated with asthma. The condition is associated with bronchiolar constriction and on inspiration a high negative intrapulmonary pressure is produced. Transudation of fluid from the pulmonary capillaries and mucous membranes into the alveoli occurs. The respiratory cycle in its expiratory phase is lengthened, the rate is decreased and the elimination of carbon dioxide is impaired. The administration of oxygen is of limited value. The volume of respiratory exchange is decreased. Although the oxygen saturation of the blood may be increased, dyspnea due to mechanical obstruction is not relieved. The administration of bronchodilators nebulized by a controlled flow of oxygen may produce some relief if the inspired atmosphere is highly humid. The inhalation of a mixture of helium (80 per cent and oxygen 20 per cent) may reduce the work of breathing since this mixture has a density one-third that of air and can be moved in and out of the lungs with one-half the effort needed to move ambient air, but since the viscosity of helium is high its advantages in inhalation therapy are not worth the extra cost. Motley[10] reported that intermittent positive pressure produced by means of a Bennett valve delivering oxygen 40 per cent in air was effective in providing relief in patients suffering from asthma. Until the cause of bronchial spasm occurring during expiration has been elucidated it is likely that no one method of therapy will be effective in all instances. The treatment of severe asthma still remains a major problem.

In emphysema the defect is loss of elastic tissue. Alveoli become distended and rupture forming larger air sacs; swelling of the bronchiolar mucous membranes causes trapping of air. The outstanding symptoms are dyspnea, a sense of constriction associated with a desire to cough. Because of the severe damage to the alveoli and bronchioles there is a marked impairment of diffusion of gases across the alveolo-capillary membrane. Tidal volume is frequently markedly decreased and, as a result, inadequate oxygenation occurs and carbon dioxide tension in the bood increases. The administration of oxygen to the emphysematous patient results in the subjective relief of dyspnea and improvement in color and, hopefully, a gradual increase in vital capacity. The disease is usually progressive to the point of diffuse pulmonary obstruction and ventilatory insufficiency. A superimposed upper respiratory infection with tracheal involvement may complicate the syndrome. The patient is apprehensive, dyspneic and frequently cyanotic. An oxygen saturation as low as 50 per cent may be produced and severe mental disturbances may be manifested.[11] A therapeutic paradox may be present. Administration of oxygen removes the hypoxic stimulus to the respiratory center which is mediated through the chemoreceptors of the carotid and aortic bodies. As a consequence there is diminished ventilation and an increase in carbon dioxide retention which may produce respiratory acidosis, coma and death. Clinicians have been prompted, therefore, to avoid oxygen therapy in similar circumstances but severe anoxia, if not relieved, produces irreversible changes in the liver, kidneys and brain and treatment must be aimed at relieving it. Whereas the ill effects of carbon dioxide narcosis may be reversible, those of unrelieved anoxia are not. Fraimow and his associates[12] used intermittent positive pressure breathing of an oxygen-enriched atmosphere. Noehren[13] demonstrated that oxygen could be administered and the effects of hypoventilation could be averted. Increased ventilation mechanically controlled, furnished a direct approach to both hypoxia and hypercapnia. Barach[14–16] and Bickerman and Barach[17] did not find the same beneficial response to intermittent positive pressure. They have proposed a plan which combines daily gradual increments in the concentration of oxygen administered, exercises in diaphragmatic breathing and the administration of bronchodilators. The application of an abdominal binder may facilitate diaphragmatic breathing.

Pulmonary edema, secondary to left ventricular heart failure, may be relieved by the administration of high concentrations of oxygen under intermittent positive pressure.[18] The effect of the positive pressure is to decrease the venous return to the right heart thus decreasing its burden. Because of this effect the positive pressure of the inspired atmosphere is usually best limited to 10 mm. Hg. in order that venous return to the right heart will not be hindered to the point of producing systemic hypotension. The positive pressure exerted on the pulmonary capillary walls counteracts the increased hydrostatic pressure in the capillaries thus diminishing the flow of fluid into the alveolar spaces or even reversing it. If pulmonary edema is associated with the production of a blood tinged froth that tends to fill the trachea, complete respiratory obstruction can supervene. A tracheostomy established in emergency provides an avenue for aspiration of the frothy material. Where tracheostomy is not needed the aspiration can be accomplished after inserting an endotracheal tube and can be followed by the administration of oxygen passed through a humidifying bottle containing ethyl alcohol in a concentration of 30 per cent in water. The intent of such therapy is to collapse the bubbles and to permit removal of endotracheal and endobronchial fluid by aspiration. The ethyl alcohol may be absorbed to the point of producing somnolence and narcosis with respiratory depression. The therapy must be carefully regulated to avoid this complication. Special care must be taken to eliminate all sources of ignition of the alcohol vapor.

Carbon Monoxide Poisoning

Carbon monoxide poisoning is seen with increasing frequency. Its deleterious effect results primarily from the great affinity of the toxic gas for hemoglobin. Oxygen is displaced from hemoglobin by the carbon monoxide and oxygen saturation of the blood decreases as the degree of poisoning increases. A second result is the histologic effect of the gas on cells which interferes with their metabolic processes. To reverse the hypoxia and prevent permanent damage to tissue cells, replacement of carbon monoxide by oxygen in the hemoglobin molecule is of primary importance. Oxygen will separate carbon monoxide form carboxyhemoglobin four times as rapidly as ambient air will, and must be supplied in 100 per cent concentration at the earliest possible moment. An additional benefit of the administration of 100 per cent oxygen is reflected in the six-fold increase in the fraction of oxygen dissolved in the plasma, rising from 0.3 per cent to 2.0 volumes per cent, a fraction not modified by the carbon monoxide present in the blood. This increment produces an increase in the arterial oxygen tension to approximately 600 mm. of Hg. or more. There is created, therefore, a very appreciable gradient for the diffusion of oxygen into tissue. This extra supply of oxygen will aid to prevent damage from anoxia to cells while the conversion of carboxyhemoglobin to oxyhemoglobin proceeds at a more gradual pace. Tomashefski and Billings[19] summarized the therapy of carbon monoxide poisoning as follows: 1. administer oxygen; 2, provide mechanical assistance to breathing; 3, treat circulatory collapse by administering fluids and vasoconstrictors intravenously; 4, produce whole body cooling when the methods enumerated above are inadequate; 5, avoid use of carbon dioxide mixtures and methylene blue, and 6, provide increased atmospheric pressure if a compression chamber is available. These authors emphasize that the excretion of carbon monoxide follows a logarithmic curve. One-half of the blood level of carbon monoxide is excreted in 240 minutes if air is breathed and in 40 minutes if pure oxygen is administered and probably faster if hyperventilation is produced while the patient breathes oxygen at two atmospheres pressure. Smith and Sharpe[20] from Glasgow report the successful treatment of two patients suffering from coal gas poisoning using oxygen under two atmospheres pressure. The progressive improvement of these patients was illustrated by E.E.G. and E.C.G. records. As of February, 1961, twenty patients suffering from coal gas poisoning had been successfully treated in a pressure chamber. After an hour, the pressure was gradually reduced to normal and the fully conscious patients were returned to bed, completely recovered in spite of over 50 per cent saturation of their hemoglobin with carbon monoxide in twelve of them originally. The need to provide compression chambers to facilitate inhalation therapy is becoming evident.

Administration Of Oxygen

The administration of oxygen under pressure of two to four atmospheres in conjunction with radiation of humans with advanced malignant disease has received considerable attention in England[21] and more recently in the United States.[22] These investigations suggest that there is a general relationship between the sensitivity of living cells to damage by X-ray and the concentration of oxygen around them at the time of irridation. Cells lacking normal amounts of oxygen are reported to lose as much as two-thirds of their radio-sensitivity. Nearly all neoplasms have some cells deficient in oxygen which may survive maximum therapeutic radiation thus leading to recurrence of the growth. Oxygen under pressure of three or four atmospheres is administered in a chamber to increase the oxygen tension of the tumor cells. Since such an exposure produces convulsions in humans, general anesthesia is necessary to prevent their occurrence. These reports of the use of oxygen under high pressure are interesting and provocative and, although inconclusive, they hold promise for improvement of results in the treatment of cancer.

The pain of coronary thrombosis is a consequence of ischemia of the cardiac musculature and a concommitant oxygen deprivation.[23, 24] Increasing the oxygen tension in arterial blood will diminish the effects of myocardial hypoxia, caused by coronary constriction, by making oxygen more readily available. Thus pain can be alleviated or abolished, the heart rate decreases and congestive failure may be prevented. If failure does supervene the continued administration of oxygen is of value while other specific therapeutic measures are employed. Ischemia and hypoxia play a similar role in the pathogenesis of cerebral thrombosis, and administration of oxygen can favorably effect the course of the disease.

Shock in its various forms, regardless of cause, manifests a demonstrable increase in capillary permeability with a transudation of fluids into the tissues. Oxygen-lack is of primary importance in the pathogenesis of increased capillary permeability and will, therefore, produce shock. Administration of oxygen may reverse the pathological process and restore the integrity of the capillary membrane; thus it is a valuable adjuvant in the management of this syndrome. During surgical shock there is tachycardia, decreased cardiac output, diminished blood volume and increased circulation time which encourages the development of stagnant anoxia. Inasmuch as the arterial blood saturation may be normal in these instances the benefits of administration of oxygen in high concentration are demonstrated by increased oxygen tension in the plasma, whereby improved perfusion of the tissues with oxygen results. Likewise in hemorrhagic shock where the oxygen supply may be adequate but its transport deficient because of a diminished volume of hemoglobin, administration of oxygen will increase the oxygen capacity of the blood materially by an increase of the dissolved oxygen in the plasma. In addition to the administration of oxygen other specific therapeutic measures must be instituted. The successful treatment of cardiac failure following an open heart surgical procedure where a pump oxygenator had been employed has been reported.[25] The patient was placed in a respirator (Drinker type) for the purpose of providing controlled respiration after the production of respiratory paralysis by the administration of curarizing agents. This relief from muscular effort for a period of three days was completely remedial. The patient recovered. The need for the ultimate in intensive care following open heart surgery has been demonstrated and a lead toward more effective care of patients suffering from cardiac failure complicated by pulmonary dysfunction may have been indicated.

In barbiturate poisoning depression of the respiratory rate and diminution of the tidal volume demand the administration of oxygen in high concentration and, if the minute volume is inadequate, artificial ventilation becomes necessary. An unobstructed airway must be assured and measurements of vital signs should be obtained, recorded and evaluated at frequent intervals. The value of analeptics in these instances has been challenged by many. The maintenance of a regime of meticulous supportive treatment of the cardiorespiratory system holds the key in great measure to improvement in the survival rate. The success of therapy will depend on the efficient implementation of a preconceived plan of action which should include dialysis. Collaboration of the internist, anesthesiologist, biochemist and inhalation therapist working as a team is warranted.

Other clinical entities which may be associated with depression of the respiratory system are seen in the presence of cerebral lesions such as tumors, abscesses or edema which may produce a decrease in tidal exchange. Narcotics for relief of pain and hypnotics for sedation may cause significant depression of the respiratory center. Splinting of the chest wall as a result of injury, intrinsic pulmonary disease, or operative procedures in the upper abdomen encourage shallow respirations. These result in hypoxia of varying degrees of severity and the benefits of the administration of oxygen are obvious. The value of supplemental oxygen in the immediate postoperative period is well documented. Shallow and depressed respirations may occur following surgical procedures. Open thoracotomy, prolonged deep anesthesia, a diminished respiratory reserve due to intrinsic pulmonary disease and the frequent utilization of muscle relaxants all may contribute to respiratory depression. Unless this derangement is properly assessed and corrected increasing hypoxia will supervene. Restlessness during this period may well be due to hypoxia and not to a reversal of the stages of anesthesia or an increasing awareness of pain. The administration of oxygen is indicated rather than a narcotic which serves to depress the respiratory center further and to intensify the hypoxia.[26]

In premature infants oxygen administered in excess of 40 per cent concentration may cause retrolental fibroplasia. If the oxygen tension in the blood does not exceed 95 mm. Hg. the danger is minimal but at present there is no practical method readily available for measuring the tension, though polarography[27] is an intriguing approach to the problem. The determination of arterial saturation by oximetry[28] offers a guide whereby administration of excessive oxygen over a prolonged period may be avoided. There is no well defined safe concentration of oxygen or any safe minimal period of oxygen administration for premature infants. Retrolental fibroplasia has been reported to occur when concentrations of oxygen as low as 30 per cent have been administered. Lower concentrations of oxygen used for a short period of time are the least hazardous.[6] To protect infants from overexposure, incubators are available which are equipped with a mixing valve limiting the inflow of oxygen in air to 40 per cent concentration regardless of the flow rate. Portable oxygen analyzers for sampling the atmosphere in incubators should be used to check the accuracy of the mixing valve. A thorough familiarity with the apparatus in use and a constant awareness of the potential dangers involved are essential. Supplemental oxygen for full term infants is not attended with the same dangers referable to vision but reports from Sweden[8] suggest that oxygen may play an important role in the etiology of hyaline membrane disease of the newborn. Oxygen administered in high concentrations may cause damage to the pulmonary capillaries resulting in increased capillary permeability thus allowing exudation into the alveoli of secretions rich in fibrin. A decrease in ciliary activity favors the retention of the secretions which are the building blocks of the hyaline membrane.

The prolonged administration of oxygen in high concentration to adults may be deleterious.[29] Comroe[30] has observed pulmonary congestion and edema following therapy with high concentration of oxygen maintained for a period of from two to four days. A decrease in vital capacity occurs. In the presence of severe hypoxia, however, oxygen in high concentration may be tolerated for longer periods[31] but adequate supervision is essential. Substernal distress indicates beginning toxicity and serves as a warning to reduce the concentration. Where chronic hypoventilation exists as in hyphoscoliosis, bilateral pleurisy, radiation fibrosis or gross obesity an elevated carbon dioxide tension may occur. Administration of oxygen in high concentration in such instances decreases ventilation further and may accentuate carbon dioxide retention. Respiratory acidosis supervenes and may progress to carbon dioxide narcosis and death if unrecognized. Administration of oxygen in low concentration and the establishment of a respiratory pattern adequate to eliminate excess carbon dioxide are the safeguards of therapy in such instances.

Inhalation of oxygen in high concentration may produce a derangement in carbon dioxide transport. The increase in dissolved oxygen in plasma directly resulting from such therapy will cause a decrease in the rate of dissociation of oxyhemoglobin in the capillaries and, consequently, a decrease in the amount of reduced hemoglobin available for combination with carbon dioxide. This may produce an undesirable increase in carbon dioxide tension especially when pulmonary disease with ventilatory insufficiency associated with elevated carbon dioxide tension may already exist.

A method for the administration of oxygen is considered adequate if its concentration can be maintained in inspired air within a range from 35 per cent to 65 per cent. This concentration is usually sufficient to raise the oxygen saturation of the blood to safe levels, reduce the work of ventilation and produce subjective improvement. Nasal catheters, masks of various types and oxygen tents are adequate devices for delivery of oxygen with varying degrees of efficiency. Humidification of the gas is an important and necessary adjuvant. The nasal catheter is especially suited for use in the immediate postoperative period. A carefully placed catheter with adequate flow of oxygen supplies enough supplemental oxygen to prevent serious hypoxia in most instances of mild to moderate hypoventilation. If a catheter is not tolerated, or when high flows of oxygen are required, the oronasal mask may be desirable. When using a mask, rebreathing is to be avoided in order to prevent carbon dioxide accumulation. Meters attached to a cylinder head or wall outlet are available which utilize the Venturi principle and are designed to deliver oxygen in concentrations ranging from 40 per cent to 100 per cent by mixing with entrained room air. The masks are equipped with valves which are designed to allow each entire exhalation to be dissipated into the surrounding atmosphere, thus preventing any dangerous accumulation of carbon dioxide. Regulation of flow so that the reservoir bag does not collapse at the end of inspiration is essential to avoid the danger of increasing negative intrapulmonary pressure. The oxygen tent is better tolerated in most instances than the catheter or mask but may be less efficient and cumbersome. Improvements in design and construction facilitating rigid control of temperature and humidity have done much to achieve higher standards of performance. Dangerous accumulation of carbon dioxide in a tent must be prevented by providing an adequate inflow of oxygen to dilute it.

Mechanical devices are available for the maintenance of respiration when the respiratory center is depressed by the action of drugs, the toxic effects of disease or by muscle relaxants employed to produce apnea during anesthesia. Ventilators are available to provide intermittent positive and negative pressure automatically. They are adjustable as to rate and character of the respiratory pattern. Some are volume controlled and pressure variable, while others are pressure controlled and variable as to volume. Negative pressure in the expiratory phase can be provided. Of primary importance is appreciation of the fact that positive pressure may interfere with venous return to the heart producing undesirable effects on the cardiovascular system. Some mechanical ventilators are electrically activated whereas others are operated by compressed air or oxygen. The latter may be used safely in the presence of explosive anesthetic gases or vapors.

The Drinker type respirator is particularly useful in the presence of chronic respiratory paralysis as in poliomyelitis of the bulbar type. Inspiration is initiated by the suction of air from the chamber creating a subatmospheric pressure about the encased body. Expiration occurs passively with each restoration of atmospheric pressure in the chamber. The maintenance of a patent airway is of utmost importance. The value of this respirator has been proven for patients with tracheostomies who have profuse tracheal secretions causing varying degrees of obstruction. In the presence of paralysis produced by muscle relaxants, automatic respiration in a Drinker apparatus combined with meticullous tracheal aspiration has been lifesaving. The Cuirass-type of respiratory assistor embracing the anterior chest wall and abdomen and providing intermittent positive pressure may be used for the transportation of patients whose respiratory action is severely compromised. It has been used successfully in the operating room for certain endoscopic procedures requiring general anesthesia and muscular relaxation. The Bennett or Bird respirators are useful for application of intermittent positive pressure to provide respiratory assistance or resuscitation.[32] These devices are designed on a flow-sensitive principle which facilitates the cycling of the apparatus in unison with the patient's respiratory rate and pattern. If spontaneous resprations cease, respiration may be controlled automatically at a pre-set rate.

The administration of therapeutic agents within the tracheobronchial tree by inhalation has increased during the past decade.[33] Nebulizers, either manually operated or mechanically activated must assure adequate nebulization. During aerosolization adequate pulmonary expansion is of primary importance to assure delivery of the agent to all parts of the lung. Bronchodilators, wetting agents, detergents, antimicrobial drugs and mucolytic agents have been used in the therapy of pulmonary diease.[34, 35] This increase in the use of oxygen or compressed air as a vehicle for these specific agents has raised the question of bacterial contamination of gases administered after release from cylinders and pipelines. It has been proposed that the gases be filtered before reaching a subject thus removing physical and bacterial contaminants from them. Methods and apparatus are now being devised to accomplish this mechanical and bacterial cleansing.

Humidification and warming of inspired air in the healthy subject is accomplished by the nasal mucosa. When this mechanism fails, as it may during illness or when the nose is bypassed in the presence of tracheostomy, drying of the respiratory tract occurs. Secretions become thick and viscid and obstruct the bronchi. Humidifying nebulizers assure adequate humidification. The introduction of fog in an air conditioned room controlled within the comfortable range of 68° to 74°F. has been of demonstrated value in the management of inflammatory diseases of the tracheobronchial tree.[9] Fog may be introduced into an oxygen tent and offers the combined benefits of controlled atmospheric temperature, high oxygen concentration and high humidity. Control of the temperature of the prescribed atmosphere is most important. If a temperature in excess of 74°F. is permitted, restlessness associated with an increase of pulse and respiratory rate will occur. If a temperature in excess of 80°F. is permitted heat retention will occur and the patient will develop hyperpyrexia. Automatic temperature-limiting devices should be an integral part of apparatus used for such purposes. Visual and audible alarms should be installed to warn personnel if a temperature exceeding 80°F. is produced.[36]

Inhalation therapy for ambulatory patients has become available in the past. Pocket sized oxygen dispensors with disposable 3 liter cartridges are equipped with a Venturi and can provide oxygen at an approximate concentration of 32 per cent in air.[37, 38] A cartridge discharges in one and one-half minutes but can be replaced in seconds. Oxygen supplied in larger portable steel cylinders weighing 3 to 5 pounds is available for more prolonged use in the home and for emergency rescue work.

Comment

In recent years there has been an increased recognition of the benefits of inhalation therapy as an adjuvant in the treatment of disease. Personnel specifically trained in the broad principles of respiratory physiology and in the function and maintenance of special equipment is necessary to assure safe administration of inhalational agents. Since problems of ventilation are a primary concern of the anesthesiologist his responsibilities extend from the operating room into the hospital ward and into the community. Because they produce and control variations of respiratory function daily anesthesiologists are in a position to provide the leadership to put inhalational therapy on a sound and scientific basis. A step in this direction is being made through the combined actions of the American College of Chest Physicians and the American Society of Anesthesiologists in fostering the formation of the American Association of Inhalation Therapists. A curriculum for their training has been outlined and it is anticipated that a registry will be initiated for those technicians possessing the necessary training, skill and experience, established by passing a comprehensive examination. This program will promote improved care of patients which the medical profession will welcome. There is a continuing need for an expanded program for training police, firemen and other groups concerned with public safety in the principles of resuscitation and the proper methods for the administration of oxygen, warranting the active support and assistance of physicians.

REFERENCES

1. Saklad, M.: Inhalation therapy and resuscitation. Springfield, Illinois, Charles C. Thomas, Publishers, 1953.

2. Comroe, J. H., Jr. and Dripps, R. D.: The physiological basis for oxygen therapy. Springfield, Illinois, Charles C. Thomas, Publishers, 1950.

3. Coates, E. O., Jr., Brinkman, G. L., Dumke, P. R., and Green, E. W.: Oxygen therapy. Postgraduate Med., 24: 1, (July) 1958.

4. Hickcox, C. B. and Friedman, J.: Concepts of inhalation therapy 1956. J. Maine Med. Ass., 47: 11, 340-345, (Nov.) 1956.

5. Prystowsky, H.: Fetal blood studies: effect of prophylactic oxygen and the oxygen pressure gradient between maternal and fetal bloods of the humans in normal and abnormal pregnancy. Amer. J. Obstet. & Gynec., 78: 483-488, (Sept.) 1959.

6. Parmelee, A. H.: Oxygen therapy for newborn and premature infants. Quart. Rev. Pediat., 14: 2, 100, (April-June) 1959.

7. Unsworth, A. C. and Parkinson, J.: Oxygen administration to premature infants. Hospitals, (June 16) 1958.

8. Administration of oxygen to infants. Brit. M. J., p. 1520, (Dec. 30) 1958.

9. Tovell, R. M. and Little, D. M., Jr.: The utilization of fog as a therapeutic agent. Anesthesiology, 18: 470, (May-June) 1957.

10. Motley, H. L., Werko, L., Cournand, A., and Richards, D. W., Jr.: Observations on the clinical use of intermittent positive pressure. J. Aviation Med., 18: 5, 417-435, (Oct.) 1947.

11. Simpson, T.: Anoxia in emphysema—its relief by oxygen. Lancet, 20: (July) 1957.

12. Fraimow, W., Cathcart, R. T., and Goodman, E.: Use of intermittent positive pressure breathing in prevention of carbon dioxide narcosis associated with oxygen therapy. Amer. Rev. Resp. Dis., 81: 815-822, (June) 1960.

13. Noehren, T. H.: Relief of carbon dioxide narcosis by simple intermittent positive pressure breathing. Dis. Chest, 28: 515, 1955.

14. Barach, A. L.: Ambulatory oxygen therapy: oxygen inhalation at home and out of doors. Dis. Chest, 35: 3, 229, (Mar.) 1959.

15. Barach, A. L.: Inhalational therapy: advances and retreats. Anesthesiology, 22: 3, 367, (May-June) 1961.

16. Barach, A. L.: Excerpts and additions to breathing exercises in pulmonary emphysema and allied chronic respiratory diseases.

17. Bickerman, H. A. and Barach, A. L.: Effect of breathing 100% oxygen in pulmonary emphysema. J. Chron. Dis., 1: 2, 111, (Feb.) 1955.

18. Smart, R. H. and Davenport, C. K.: Intermittent positive pressure in emphysema of chronic lung disease. J.A.M.A., 150: 14, 1385, (Dec. 6) 1952.

19. Tomashefski, J. F. and Billings, C. E., Jr.: Carbon monoxide poisoning—physiological basis for treatment. Ohio State M. J., 57: 149, (Feb.) 1961.

20. Smith, G. and Sharp, G. R.: Treatment of carbon monoxide poisoning with oxygen under pressure. Lancet, 22: (Oct.) 1960.

21. Churchill-Davidson, H. C.: Oxygenization in radio therapy. J. Obstet. & Gynec. Brit. Emp., 66: 855-856.

22. Seaman, W. B., Tapley, N. D., Sanger, C., Jacox, H. W., and Atkins, H. L.: Combined high-pressure oxygen and radiation therapy in the treatment of human cancer. Amer. J. Roentgenol., 85: 816, (May) 1961.

23. Levy, R. L.: Oxygen in cardiac infarction. Bull. New York Acad. Med., 26: 6, 394-401, (June) 1950.

24. Barach, A. L., Pons, E. R., and Berg, J.: Early use of oxygen in coronary thrombosis. J.A.M.A., 174: 10, 1276, (Nov. 5), 1960.

25. Sanger, P. W., Robiosek, F., Taylor, F. H., Stam, R. E., and Rees, T. T.: Acute postoperative cardiorespiratory insufficiency. J.A.M.A., 172: 695 (Feb. 13) 1960.

26. Searles, P. W.: Inhalational therapy in the recovery room. Hospitals, p. 55, (Oct. 1) 1960.

27. Chute, A. L.: Some complications of transfusion endocrine therapy and oxygen administration. Pediat., 22: 1, 170, (July) 1958.

28. Castellanos, M., et al.: Use of recording oximeter in the management of postoperative oxygen therapy. J. Thor. Surg., 29: 4, 419, (April) 1955.

29. Penrod, K. E.: Nature of pulmonary damage produced by high oxygen pressure. J. Appl. Physiol., 9: 1, (July 1), 1956.

30. Comroe, J. H., Dripps, R. D., Dumke, P. R., and Deming, M.: Oxygen toxicity. J.A.M.A., 128: 710-717, (July 7) 1945.

31. Barach, A. L.: Principles and practices of inhalational therapy. J. B. Lippincott Co., Philadelphia, 1944.

32. Miller, Wm. F. and Sproule, B. J.: Studies of the role of IPPB in treatment of pulmonary edema. Dis. Chest, 35: 5, 469, (May) 1959.

33. Use of aerosolized medication in broncho pulmonary disease. Amer. Rev. of Resp. Dis., 82: 748-749, (Nov.) 1960.

34. Karp, M.: Present status of aerosol therapy. J. Amer. Med. Women's Ass., 7: 81-85, 1952.

35. Puls, R. J.: Inhalation of bronchodilator-wetting agent solution. Ann. Allergy, 18: 424-426, (April) 1960.

36. Tovell, R. M., Lion, K. S., and Lovell, B. B.: Recent advances in inhalation therapy utilizing high humidity. Anesth. & Analg.-Current Researches, 105: (Jan.-Feb.) 1961.

37. Pons, E. R.: Ambulatory use of oxygen. Amer. J. Nursing, 60: 1775, (Dec.) 1960.

38. Barach, A. L.: Inhalational therapy, advances and retreats. Anesthesiology, 22: 3, p. 367, (May-June) 1961.

Respiratory Stimulants

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Nature Of Analeptics

Drugs used to antagonize depression of the central nervous system are called analeptics.[3] The word analeptics is of Greek origin and means restorative. The term is incorrectly applied, at times, to vasopressors and cardiac stimulants. When properly used the term designates substances which are central nervous system stimulants and which elevate reflex activity in patients with central depression. The action of analeptics is primarily upon the respiratory center. Numerous drugs are available which stimulate the central nervous system but only a limited number possess the controllability necessary to make them suitable as therapeutic agents to overcome central depression. Procaine, for example, is a central stimulant but is useless as an analeptic because it lacks specificity and controllability and does not exert its effect primarily upon the medullary centers. Strychnine, likewise, is a central stimulant but its primary site of action is in the spinal cord. It is of little or no value as a respiratory stimulant.

Site Of Action Of Analeptics

Most central nervous system stimulants act at a primary locus when used in therapeutic doses.[3] The action, however, spreads to other regions of the brain, as the quantity used is increased. Caffeine and benzedrine, for example, stimulate the cerebral cortex in small doses. Large doses are required to stimulate the medullary centers. For this reason they are of little value as analeptics. Some drugs, as for example atropine, appear to act in a diffuse manner throughout the cerebrospinal axis rather than in a localized area. These, likewise, are not suitable as analeptics. Strychnine acts principally on the spinal cord. A number of the newer analeptics appear to cause awakening and evoke arousal in addition to respiratory stimulation. The classical drugs, such as metrazol, picrotoxin and coramine fail to accomplish this.

Depression Following Stimulation

Large or repeated doses of central nervous stimulants cause depression after the initial stimulation. This behavior is a characteristic of most stimulating drugs. Carbon dioxide, for example, stimulates the respiratory center when concentrations up to 6 or 7 per cent are inhaled. Concentrations exceeding 10 per cent cause depression characterized by narcosis and even respiratory paralysis. Depression and respiratory failure caused by overdosage of stimulating drugs, such as benzedrine, procaine, atropine and so on is seldom antagonized by analeptics.

Antagonism

Antagonism is the reversal, nullification or blocking of the effects of one drug by another. Antagonism may be achieved by one of three basic physiologic or pharmacologic mechanisms. These are physiological antagonism, competitive inhibition and non-competitive inhibition. Of the three physiological antagonism and competitive inhibition are pertinent to this discussion. Reversal by physiologic antagonism is accomplished by using a substance which acts in a manner opposite to the offending agent. Antagonism by competitive inhibition is accomplished by using a substance whose molecular configuration has a chemical grouping similar to an offending agent but which is physiologically inactive. This grouping which is common to both substances is responsible for the competition of the antagonist with the agent for a particular receptor site in the cell. Thus, a physiologically inert substance is capable of nullifying the response of an active one by combining preferentially with receptors in the cell. The anti-narcotics act by competitive inhibition. Nalorphine (Nalline), for example, is a feeble narcotic which is capable of displacing morphine or other narcotic from its receptor.[16] Thus, a strong narcotic effect is supplanted by one which is less so. Anti-narcotics are not considered to be analeptics, since they are depressants and not stimulants. As a matter of fact they may enhance the depression caused by hypnotics and other non-narcotic depressants.

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Mode Of Action Of Analeptics

Little is known concerning the manner in which analeptics antagonize depression. The analeptics oppose the reaction of depressants but it is doubtful that they act as physiologic antagonists. The available evidence strongly suggests that two separate actions—depression and stimulation—are occurring simultaneously but at different sites. The suggestion has been offered that the activity of various groups of neurons in the nervous system is in a state of balance and that it is mutually regulated by reciprocal excitation and inhibition. Substances capable of altering the activity of a group of neurons may disrupt this balance and cause disorganization. The end result of disorganization is either anesthesia or convulsions. It is interesting to note in this connection that many central excitants are chemically allied to hypnotics and that a slight modification in chemical structure may convert a hypnotic to a convulsant and vice versa.[4] Phenobarbital, for example, may be converted to a convulsant by interposing a carbon atom between the benzene ring and carbon 5, thereby converting it into ethyl benzyl barbituric acid.[1] It is possible that the so-called excitants actually are depressants which completely suppress the activity of one group of neurons which is inhibitory so that an excitable group which is normally inhibited by these restraining neurons becomes fully active and functions to the extreme so that convulsions result.[6]

Effects Of Elimination

Analeptics have no influence on the destruction or elimination of depressant drugs.[1] After the administration of an analeptic, therefore, the organism is beset with the problem of disposing of two drugs instead of a single offending agent. The antagonists not only do not alleviate the burden of the organism in handling one drug but complicate the situation further by introducing a second drug. Although this is alleged to be a major drawback particularly in the severely depressed, grossly overdosed patient, clinical experience does not bear this out. Massive doses of analeptics have been administered to patients to overcome coma due to massive doses of depressants without obvious ill-effects.[1]

Clinical Types Of Antagonists

The restoratives in present day use are of three types. (1) Those which act by competitive inhibition, (2) neuronal or synaptic excitants and (3) reflex stimulants. The anti-narcotics, such as nalorphine (Nalline) and levallorphan (Lorfan) act by competitive inhibition. It has been mentioned previously that neither of these is truly analeptic, since they are not excitants. The electroencephalographic pattern after their administration verifies that depression occurs instead of excitation.[13]

Drugs which activate the chemoreceptor cells in the carotid body and reflexly stimulate respiration have also been used as restoratives.[9] Presumably these drugs act by suppressing oxidative enzymes in the chemoreceptor cells. They, thus, mimic the stimulus evoked by anoxemia in these cells. Lobeline, nicotine and sodium cyanide act in this manner. None of the available drugs of this type is suitable for clinical use. Alphalobeline, the better known and the most extensively studied, is obsolete and is no longer used. Its action is evanescent which leads to the use of successive doses to maintain reflex activity. Repeated doses produce a nicotine-like response, a curariform action and ganglionic blockade and cardiac arrhythmias.

The action of analeptics is non-specific. In other words, they counteract a multitude of dissimilar rather than a single type of drug. Each analeptic appears to act in nearly the same manner irrespective of its chemical type and of the chemical type of depressant producing the inactivity of the nervous system. None of the presently known analeptics acts by competitive inhibition.

The presence of a depressant drug in the nervous system appears to be necessary in order that an analeptic elicit the characteristic well defined stimulating effect. Smaller doses of analeptics are required to produce reflex activity in narcotized animals than is necessary in the non-narcotized. In an non-narcotized awake animal the first sign of excitation may be a convulsion. The gradually increasing ventilatory movements and augmentation of reflex activity seen in narcotized animals are nowhere near as apparent. Analeptics are of no benefit when respiratory failure is due to agents other than drugs such as anoxia, carbon dioxide excess, cold, electricity, trauma and so on. They should never be used for asphyxia due to drowning, strangulation or electrocution or for apnea due to shock, hypovolemia and other causes not related to depressant drugs.

Other Effects On The Medulla

The most obvious response of analeptics is stimulation of respiration presumably due to stimulation of the respiratory center; yet stimulation is not necessarily confined to this center alone. The vasomotor center, the vomiting center and other medullary centers in proximity to the respiratory center are stimulated as well. Nausea, vomiting, salivation, an elevation in blood pressure and other phenomenon associated with medullary stimulation may occur simultaneously with respiratory stimulation. These side effects often preclude the use of these drugs.

Types Of Analeptics

The older conventional analeptics, such as pentamethylenetetrazole (Metrazol), nikethamide (Coramine), picrotoxin, caffeine and so on have been relegated into the background and superseded by a number of newer analeptics.[3,9] For nearly two decades picrotoxin was the drug of choice for treatment of barbiturate intoxication. Among the new drugs are bemegride,[5,14,15] aminphenazole (Daptazole), methylphenidate (Ritalin)[7] and ethamivan (Emivan).[12] At the moment bemegride appears to have the greatest number of enthusiastic advocates. When first introduced bemegride was said to act by competitive inhibition and to be a specific antagonist for barbiturates. It has been definitely established that this is not the case. The drug is a non-specific analeptic as are all the others. Large doses are convulsant as are the other analeptics but its margin of safety is somewhat greater. The striking difference between bemegride and the older analeptics is its ability to cause arousal of the sensorium, in addition to the return of reflex activity. Such arousal was virtually unknown when comatose patients were treated with picrotoxin. Arousal, however, occurs primarily in the lightly narcotized patients who are mildly depressed. Deeply narcotized patients are difficult to arouse or if they are aroused tend to regress into the state of unconsciousness. Methylphenidate (Ritalin) is less effective in profound coma than bemegride but is more effective than picrotoxin. Arousal from the hypnotic state is frequently accompanied by disorientation and excitement. Nausea, vomiting, retching, coughing and an elevation in blood pressure are frequently observed. The drug was introduced as a psychic energizer for elevation of the mood in depressed patients. Its action ordinarily is upon the supramedullary areas. As the dose is increased excitation spreads to the medullary centers. Aminphenazole (Daptazole) was first believed to be an anti-narcotic. This claim has not been substantiated. Daptazole is an non-specific central excitant as are the other analeptics. Results with this drug have been disappointing and the drug is not used to any extent in this country. The drug is not chemically allied to any of the narcotics. Enthusiastic reports have appeared concerning the use of ethamivan (Emivan). Clinical experience with this drug has not been as extensive as that using bemegride or methylphenidate. Emivan is chemically allied to Nikethamide (Coramine). The drug was first introduced under the proprietary name of Vandid. The drug appears to be another non-specific central excitant. The drug is newer than the other two and will, therefore, have to undergo more extensive clinical use before a definite statement can be made concerning its efficacy.

Present Day Attitude Towards Analeptics

For a number of years two schools of thought have prevailed concerning the use of analeptics in the treatment of overdosage of hypnotics. One school has claimed that antagonists are entirely without benefit and can actually be harmful.[11] The exponents of this view contend that supportive measures without drug therapy are sufficient and that analeptics do not shorten recovery time. In fact, they feel that analeptics actually enhance the depression and do harm. Others feel that analeptics are useful life-saving adjuncts if used with discretion.[2,15] It is difficult to reconcile these two views. The numerous writings and case reports on this subject not only do nothing to clarify matters but actually add confusion to the issues. This is due to the fact the depth of depression is not easily assessed. Numerous variable factors are present in the clinical evaluation of the cases cited. The response to overdosage of a particular hypnotic varies from individual to individual. Absorption, detoxification and elimination are quite variable and depend upon the metabolic state of the individual, the degree of hydration, dosage and other factors. The discrepancies are by and large due to lack of a uniform manner of reporting according to etiologic agents, persistence of symptoms and response to treatment.

Regardless of the volume of laboratory and statistical data presented concerning the effects of a therapeutic agent, its acceptance or rejection ultimately depends upon the experience and results obtained by many clinicians using the substance observing large groups of patients. Those who have encountered mostly failures have no faith in analeptics; while those who have had success continue to use them. They at least merit a trial. They may not cause arousal; but at least reflex activity is increased in most cases. Besides, in some situations they appear not only to elevate the level of reflex activity but contribute to the reversal of hypotensive states. This alone justifies their trial. At times the quantity of vasopressor necessary to maintain the blood pressure to normal level is less with the analeptic than without.

Situations Not Requiring Analeptics

Besides the situations mentioned in which depression is not due to drugs (anoxia, cold, etc.), antagonists are unnecessary in treating overdosage due to volatile, inhalational anesthetics. The excess drug is readily eliminated from the nervous system via the lung by artificial respiration. Anesthetists trained in the administration of inhalational anesthetics are aware of this and immediately institute artificial respiration to remove the excess drug from the system. Nothing more is necessary. The uninformed person loses his equanimity and reaches for the analeptic. Antagonists have no place in the management of coma due to overdosage of central stimulants. Respiratory failure following overdosage of a local anesthetic, for example, is not reversed by analeptics. Not only are they of no benefit in these cases but they may even enhance the existing depression.

Use At The Conclusion Of Surgical Anesthesia

Analeptics are often advocated largely by the uninformed, for the termination of surgical anesthesia with thiopental or other ultra-short acting barbiturates when these have been used as adjuncts to surgical anesthesia.[7] The inference which is made is that anesthesia may be turned on and off at will and that the drug somehow or other is physiologically neutralized by the stimulant. Some physicians are so thoughtless that they use analeptics for ambulatory patients underging minor operations so that such patients may be discharged immediately after completion of the procedure. Regardless of the degree of arousal produced by an analeptic, some clouding of the sensorium persists for a number of hours after apparent recovery. The offending agent still remains in the body and the patient shows "hangover effects." Little is gained in arousing a semisomnolent post-surgical patient whose preference at this time is to be unmolested. The possibility of nausea, vomiting, hypertension, convulsions, excitement and delerium must not be overlooked. Judicious use of intravenous barbiturates in the first place eliminates the need for analeptics after the operation is completed. The practice of combining analeptics with thiopental or other barbiturates, likewise, has no logical basis.

Supportive Measures

Regardless of one's point of view in the matter, one must always bear in mind that analeptics are only adjuncts to general supportive measures. They are secondary in importance to these supportive measures which should be instituted immediately upon admission of the drug intoxicated patient to the hospital. The following are the important supportive measures: (1) Establishment of an unimpeded airway. A pharyngeal airway will suffice for short periods of time; an endotracheal tube should be used for longer periods of time and a tracheotomy should be performed for profound coma. (2) Artificial respiration should be instituted in cases of apnea. Assisted respiration with oxygen enriched air should be used in the event hypoventilation is present. (3) Aspiration of gastric contents for cases in which oral ingestion of a depressant has occurred within several hours. (4) Hydration and control of electrolytes to assure adequate urinary output and (5) prevention of atelectasis and hypostatic pneumonia.

REFERENCES

1. Adriani, J. and Kerr, M.: Respiratory stimulants. South. Med. Jour., 51: 1532-1536, Dec., 1955.

2. Adriani, J. and Smith, Bobby: Respiratory stimulants. Anesthesiology, 19: 115, 1958.

3. Adriani, J.: Respiratory stimulants. GP 20(5). 100-107, Nov., 1959.

4. Barlow, R. B.: Chemical pharmacology. John Wiley, New York, 1955, pp. 72-81.

5. Boyan, C. P., Bellville, J. W., et al.: Relative potency of bemegride and metrazol. Anesthesiology, 19: 321, 1958.

6. Elliot, K. A., Page I., and Quastel, J. H.: Chapter 14, pages 549-550, Neurochemistry. Thomas, Springfield, 1955.

7. Gale, A.: Effects of methylphenidate on thiopental recovery. Anesthesiology, 19: 521, 1958.

8. Gale, A.: Comparative and additive effects of methylphenidate and bemegride. Anesthesiology, 22: 210-214, 1961.

9. Himwich, H. E.: Stimulants, Chap. XXI, p. 356. The effects of pharmacologic agents on the nervous system. Proc. Assoc. for Nervous and Mental Diseases. V37. Williams and Wilkins, Baltimore, 1959.

10. National Academy of Sciences. Hankbook of Toxicology. Vol. IV, pp. 25-96. Tranquilizers. W. B. Saunders, 1959.

11. Nilson, E.: Treatment of barbiturate poisoning: a modified clinical aspect. Acta Med. Scandinava, 139: 127, 1951 Supplement No. 253.

12. O'Riordan, E. F. and Marcus, P. S.: Barbiturate antagonists. Anes. & Analg., 40: 188, March, 1960.

13. Pearcy, W. C., Knott, J. R., and Bjurstrom, R. O.: Studies on nitrous oxide, meperidine and levollorphan with unipolar electroencephalography. Anesthesiology, 18: 310-315, 1957.

14. Shaw, E. H., Simon, S. E., et al.: Barbiturate antagonism. Nature, 174: 402, 1954.

15. Shulman, A. and Laycock, C. M.: Bemegride analepsis. Brit. Med. Jour., 1: 871, 1958.

16. Telford, J. and Keats, A.: Narcotic antagonist mixtures. Anesthesiology, 22: 465-470, June, 1961.

Hypothermia—An Adjunct To Anesthesia

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As adjuncts to anesthesia, hypothermia may be broadly classified into two groups: One, the use of local application of cold to produce analgesia. Two, generalized body cooling resulting in a lowering of metabolism of the tissues and the production of the anesthetic state of cold narcosis. The production of analgesia by local application of cold to the skin surface has been known since time immemorial. Hippocrates[1] was aware of this effect. The utilization of this knowledge is common today when icebags are placed on postoperative surgical wounds for pain relief. Minor surgical procedures may even be performed. A common method of analgesic production is by the use of ethyl chloride spray where rapid evaporation results in cooling of the tissues. Recently the application of cold water for the same purpose in burn trauma has been advocated.[2] The mechanism of analgesia in these cases is one of some interest. Working with mammalian nerve (rabbit's perineal nerve) Harreveld and Christensen[3] have shown that cooling affects the injury potential, which was taken as a measure of membrane potential, three ways: (a) During the drop in temperature, the injury potential decreases simultaneously and approximately in proportion with the absolute temperature. (b) Cooling slows down the repair processes at the demarcation plane between damaged and uninjured nerve. (c) At about 10°C. the nerve fibers slowly depolarize causing a decrease of injury potential to a low level. Further they proposed that this depolarization is due to reduction of metabolism to a level so low that it cannot maintain the membrane potential. The observation of Bullock[4] indicated that synaptic transmission was more affected by cooling than was propagation along the fibers. But these results could not be reproduced by Stevenson, *et al.*[5] who working with adult cats, indicated more delay in the transmission of impulse along fibers than across a synapse in the range of temperatures studied. The nerve preparation may have been a major difference in the results obtained in these cases, but it seems probable that cold prevents enzymatic processes responsible for the oxidative metabolism of nerves which maintain membrane potential, and restores the membrane after depolarization.[6]

Cannard and Zaimis[7] have investigated the action of neuromuscular blocking agents in man utilizing extremities in which the temperature was lowered by the local application of cold. They have shown that the depolarizing relaxants were more effective; the duration being more affected than magnitude. On rewarming these effects were reversed. In contradistinction the non-depolarizing relaxants were less effective. These results suggest that there is an increase in the effectiveness of acetylcholine at lower temperature.

More extensive use of local application of cold to produce refrigeration has been utilized for traumatic amputations since the Napoleonic wars. This technique has been further explored by Allen, *et al.*[8] who recommended the use of regional cooling for amputation of ganrenous extremities, particularly in diabetic and arteriosclerotic patients. Not only was analgesia produced but the reduction of metabolism and oxygen demand of the tissues seemed to reduce the absorption of toxic products. Although time consuming, this is a technique that

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requires no specific equipment save a plastic sheet cover and a source of ice. In poor risk patients, many of whom are on anti-coagulant therapy and suffering from sclerotic heart disease, it has much to recommend it.

General hypothermia may be defined as a *controlled* fall of temperature in which the inherent body mechanisms for maintenance of normothermia are interrupted. This controlled fall of temperature is of upmost importance. It is well known that the body reacts to cold essenially by marked sympathetic activity which is characterized by profound vasoconstriction and shivering. This sympathetic overactivity must be controlled in order that the beneficial effects of reduced metabolism be obtained. The fall in temperature results in a reduction of metabolism which is generally agreed occurs in a linear fashion and is reflected in lowered oxygen consumption so that at 30°C. the oxygen consumption is reduced 50 per cent. By 23°C. a figure of 16 per cent of normal has been reported. It is a result of this generalized reduction in oxygen requirement that periods of total circulatory arrest are possible without brain damage and the length of time of occlusion will depend on the core temperature obtained. Of particular interest and importance to the anesthesiologists are the effects of hypothermia on the central nervous, cardiovascular system, the liver and kidneys.

The term "cold narcosis" was first introduced by Simpson and Herring[9] who reported the alteration of nervous system function associated with the reduction of temperature in animals. French, Verzeano and Magoun[10] demonstrated an early and profound depression by anesthetic agents of evoked potentials in the mid-brain reticular formation. A relative lack of effect of cortical evoked potentials lead them to postulate that the depression of the ascending reticular activity system represents the neuro basis for the anesthetic state. Partially selective depression of function of the brain stem reticular activating system incident to hypothermia obtained by indirect evidence has been reported. Direct measurement was secured by Stevenson, *et al.*[5] who studied by direct observation the effects of hypothermia on subcortical potentials evoked by stimulation of peripheral nerves and recorded at spinal cord, mid-brain reticular and thalamic loci. The depressant action of cooling on thalamic relay, mid-brain reticular and spinal cord potentials was noted although the last named responses were initially augmented by hypothermia. Further, the depression of the evoked potentials from the mid-brain reticular formation was apparent at lesser degrees of hypothermia than the thalamic relay evoked response or the spinal cord dorsal volume response indicating greater sensitivity of the reticular formation to cooling.

No effect was seen on the evoked potentials with rectal temperatures maintained at 34°C. or above. This depression of cortical activity has been well demonstrated by Woodhall and Reynolds,[11] utilizing localized cerebral hypothermia, and by Bigelow, *et al.*[12] who recorded the EEG pattern during cooling of monkeys. These monkeys were cooled to a temperature of 20°C. In general, slow wave activity became apparent at a brain temperature of 32°C. and there was a concomitant fall in amplitude as this temperature was reduced. The recordings became flat 21-20C°. The cortex remained electrically silent below this temperature and when the gradient was reversed, small bursts of slow activity reappeared at 21°C. After 30°C. fast activity dominated the pattern and the record became normal again at the precooling temperature level. No abnormal changes were noted in surviving animals. At temperatures below this level, however, the results are not so clear cut. Parkins, *et al.*[13] found serious brain damage with differential cold perfusion when the brain temperature of dogs was lowered below 14°C. Naizi and Lewis[14] cooled dogs with surface immersion to 7°C. Recovery was noted without brain damage. Gordon, *et al.*[15] used cold perfusion to achieve cerebral temperature of 8-12°C. without damage. It is by no means certain, however, that these results in dogs can be reproduced in man cooled to this temperature. Bjork[16] reported focal brain damage in four out of ten patients cooled to 10-16°C. with occlusion for 41-71 minutes. While the lower limits of cooling have not as yet been defined, it has been clinically proven that at temperatures of 30°C., total interruption of cerebral blood flow may be sustained for somewhere between 6 and 8 minutes, and at this level, cold narcosis is evident. Many authors have emphasized this fact stressing that at this temperature, 50 per cent nitrous oxide supplemented with small increments of demerol intravenously if required is all that is necessary to maintain anesthesia. Of clinical importance also is the effect of hypothermia on brain volume. In the dog at 25°C. Rosomoff and coworkers[7] have shown that brain volume is decreased by 4.1 per cent and the intracranial space not occupied by brain is increased by 31.8 per cent. It is worth noting that in these studies, the dogs were hyperventilated with a respirator capable of positive and negative pressure cycles. These changes noted are probably the result not only of decreased cerebral blood flow with its associated decrease of cerebral oxygen consumption, but with a reduction of cerebrospinal fluid pressure which occurred at a rate of 5.5 per cent per degree Centigrade fall in body temperature. Rosomoff and coworkers[18] have also shown that at temperatures between 35 and 25°C. cerebral blood flow is decreased by 6.7 per cent per degree fall in Centigrade temperature so that cerebral blood flow is about 50 per cent of the control value at a temperature of 29°C. Cerebral oxygen consumption falls at a similar rate but only if shivering is prevented. This latter point is of upmost importance for even at 28°C., cerebral oxygen utilization may be increased over 100 per cent if shivering occurs despite a decreased cerebral blood flow.[19] This decreased cerebral metabolism which generally pertains during hypothermia occurs in the face of unchanged arteriovenous oxygen difference suggesting that there is no hypoxic damage to cerebral tissue.[20] This reduction in brain size greatly facilitates the intracranial surgical treatment of vascular lesions and certain tumors.

Experimentally it has been shown that spinal fluid pressure can be lowered very rapidly by the intravenous injection of hypertonic solutions of various substances. Studies have demonstrated that urea infusions could be utilized to produce this effect in man. The lowered intracranial pressure induced by urea hyperosmolality in blood has been shown to be a life-saving procedure in patients with cerebral edema. It is not surprising therefore, that the combined effect of hypertonic urea solutions and hypothermia has been used in order not only to reduce brain volume and intracranial pressure but cerebral metabolism. Sporadic reports of fatalities from cardiac arrest, of which we have had personal experience in one case, have appeared following this combined therapy. Bering and Avman[21] have reported an experimental study in dogs in which 1.5 grams of a 25-35 per cent solution of urea per kilogram of body weight was given I.V. rapidly, to dogs in a temperature range of 38 to 23°C. Elimination of the urea was reduced markedly by the hypothermia but the return of the total osmotic pressure of serum to normal was much less affected which suggested an increased loss of electrolytes in the diuresis produced by the urea in the hypothermic state. The relative effects on the intracranial pressure were greater in the hypothermic state; because of this together with the loss of electrolytes, they considered the amount of urea should be reduced considerably. Additional important information revealed that rapid injection of urea caused severe ECG changes, presumably due to severe electrolyte alterations in the serum. In a discussion following presentation of this paper, Bering suggested one quarter of the dose of urea should be given during hypothermia and this has been our policy as of the last twelve months. To the anesthesiologist, the effects of hypothermia and urea will not be confined only to the operating room. In a study on dogs by Rosomoff,[22] it has been shown that (a) hypothermia of 25°C. for one hour markedly reduced mortality of the standard brain injury. (b) That if hypothermia were instituted within three hours a similar protection was noted. (c) Interestingly enough, the mode of action was probably not the reduction of cerebral edema. Barbour and coworkers[23] have independently shown that in monkeys, in the temperature range used clinically, hypothermia does in fact cause a shift of water intracellularly. However, there can be no doubt that hypothermia is of value in treating not only the patient with severe head trauma but Williams and Spencer[24] have demonstrated the advantage of cooling patients who do not immediately recover their logical function following cardiac arrest and resuscitation.

Cardiovascular Effects

As with other systems the basic alteration is a general reduction in metabolism. Commensurate with hypothermia there is a fall in pulse rate and blood pressure and a diminution of cardiac output. The cardiac output in hypothermic dogs has been shown to decrease from 145.5 cc/kg/min. at 37°C. to 26 cc/kg/min. at 17°C. Between the same temperature limits the arterial pressure fell from 126 mm Hg to 54, the pulse rate from 160 to 26. The ECG changes are of considerable interest. Hegnauer[25] and Berne, *et al.*[26] have shown that there is a marked prolongation of systolic contraction and isometric relaxation and attempts to increase heart rate artificially by the administration of atropine further reduces the diastolic filling and cardiac output and cardiac arrest may result. With progressive cooling, the ECG changes consist sequentially of bradycardia, prolongation of P-R interval and QRS complex, changes in ST segments and T waves, premature contractions and ventricular fibrillation and finally cardiac standstill.[27] The upper limits of temperature at which this occurred is variable, but it is our policy to regard 28°C. the lower safe limit to which hypothermia is induced unless some mechanical means of circulatory support is available. Respiratory acidosis is known to occur during the cooling process. This may be associated with depression of respiration which is also present. At the same time there is increased solubility of carbon dioxide in the plasma because of the lower temperature; more CO_2 is therefore dissolved and this affects the plasma pH. The incidence of ventricular fibrillation has been shown to be markedly increased with acidosis[28] and it has been our policy for active hyperventilation to be carried out during the cooling process. However, Naizi and Lewis[29] believe that the intentional use of high concentration of carbon dioxide in the respiratory gas mixtures prevents the development of fibrillation. This apparent paradox is probably due to the fact that neither high nor low pH by themselves affect the incidence of fibrillation, that the maintenance of a steady pH without sudden changes during cooling and rewarming is the most important feature to be obtained.

Wilson, *et al.*[30] have commented on the poor tolerance of the hypothermic individual to blood loss and rigid avoidance of hypovolemia is carried out in these patients. Difficulty is often experienced in palpating the peripheral blood pressure at 30°C., but during rewarming it has been our experience that if blood pressure cannot be palpated at 33°C. blood loss has not adequately been replaced.

The Liver

Hepatic blood flow is diminished in hypothermia and there are no significant sequelae[31]. Fisher[32] has reported depletion of glycogen if hypothermia was prolonged beyond six hours. Experimentally it has been shown in dogs that following the occlusion of blood supply to the liver for sixty minutes, severe liver damage with death in 100 per cent resulted. A group of dogs under hypothermia at a range of 25-31°C. survived a similar occlusion without damage. Hypothermia therefore provides safety for surgical procedures such as hepatic resection where prolonged vascular clamping is required. It is interesting to note that although metabolic activity of each organ diminishes at about the same rate, the effect of this on organic function varies. For example, the liver oxygen consumption at 24°C. is reported at 40 per cent while the half life of morphine increased from 3.7 to 94 minutes.

That hyperglycemia may occur during hypothermia due to the inability of the body to metabolize glucose has been reported by Wynn[33] and it has been suggested that the administration of glucose is hazardous under these circumstances. However, other reports have suggested that glucose can increase the contractile force of the heart at lowered temperature.[34] The administration of glucose during hypothermia is thus controversial.

Kidney

The progressive fall in blood pressure occurring in hypothermia results in the reduction of renal blood flow with resultant fall in glomerular filtration rate. This has been studied in dogs[35] and in man.[36] This reduction in glomerular filtration rate however does not result in decreased urine formation which is usually normal and may even be increased, and this would indicate that there is marked impairment of tubular reabsorption probably the result of direct effect of cold.[37] Not only are water, sodium and glucose not reabsorbed but potassium is not excreted and the production of ammonia and creatinine is impaired. Owens, Prevedel and Swan[38] have studied the prolonged experimental occlusion of the thoracic aorta during hypothermia. Dogs were cooled to body temperature range of 23-26°C. and occlusion was carried out for periods of 90 to 180 minutes. Renal function was studied by observations of the glomerular filtration rate (using creatinine clearance and renal plasma flow by para-aminohippuric acid) and they conclude that hypothermia doubles the safe period for actual occlusion of the kidney. More recently Cockett[39] has described a heat exchanger which provides regional hypothermia to the kidney. Results with dogs and patients have shown that kidney function is protected during two hours of ischemia at preselected intrarenal temperature 21-28°C. He suggested the use of this technique for renal surgery as well as abdominal aortic replacement involving renal arteries.

Methods Of Cooling

The means by which a patient may be cooled can be classified in three categories; (a) surface cooling, (b) body cavity cooling, (c) direct blood stream cooling.

Surface cooling: This utilizes the skin and subcutaneous tissue for natural heat exchange. For efficient heat exchange, it is necessary to maintain peripheral circulation in the presence of an adequate temperature gradient between the blood and skin surface. The modes by which surface cooling may be obtained are[40]: (i) immersion in cold water, (ii) cold water spray, (iii) water evaporation, (iv) application of ice packs, (v) refrigeration blankets, and (vi) air cooling. Of these methods, the immersion of the body in iced water is most widely used, for not only is it the most rapid technique due to the large body surface exposed, but it is inexpensive as no special equipment is required. This technique has been described in detail[41] and it suffices to point out that the two prime essentials necessary for the induction of hypothermia by surface cooling are (a) adequate peripheral vasodilatation, and (b) complete abolishing of shivering.[42]

Body cavity cooling: It is possible to produce hypothermia by the introduction of cold fluids into body cavities. Blades and Pierpont[43] have induced hypothermia during thoracotomy by perfusing cold saline into the pleural cavity but cardiac irregularities are common as the heart is directly exposed to the cold solution. Large volumes of solution are required in this technique.

Intragastric cooling may be accomplished by the introduction of cold water through a double lumen tube attached to a balloon which has been passed via the esophagus into the stomach. For general hypothermia, this method is slow but it may be useful for local cooling of the stomach for treatment of bleeding ulcers.

Bloodstream cooling: Direct blood stream cooling consists essentially of removing blood from a cannulated major vessel, cooling the blood and returning it to the body. Arterio-venous cooling was first described by Boerema, *et al.*[44] and Delorme,[45] and this consisted of allowing the arterial pressure to push heparinized blood through a heat-exchanger and reinfuse it into a vein. Brock and Ross,[46] and later Frederickson[47] applied clinically the vein to vein technique for extracorporeal cooling using a pump to drive the blood through the heat-exchanger. Gollan, *et al*,[48] and Pierce and Polley[49] first suggested the use of a pump-oxygenator in a veno-arterial cooling circuit and this technique of combined oxygenation and cooling has been extensively employed by Young[50] using the improved heat-exchanger of Brown.[51] Many of the central organs achieved temperatures below 20°C. by this method and periods of circulatory arrest of many minutes were of aid in creating a truly bloodless intracardiac operative field. Drew, *et al.*[52] and Shields and Lewis[53] almost simultaneously reported the technique achieving deep hypothermia by perfusing both the systemic and pulmonary circuits using the patient's own lungs for oxygenation and a heat exchanger for the systemic side. Core temperatures ranging between 10-20°C. allowed periods of complete circulatory arrest up to 50 minutes with recovery.

Direct cooling of the brain was described by Parkins[54] and brain temperatures in the range of 18-20°C. allows circulatory occlusion for periods up to 30 minutes. Kimoto, *et al.*[55] employed this technique for repair of congenital cardiac defects. The longest occlusion time was 13 minutes.

During perfusion with carcinogenic substances, not only has it been shown that hypothermia protects animals from an otherwsie lethal dosage of total body irridation[56] but there is a similar inhibition of the action of the alkalating agents.[57,58] Use of this has been described for the chemotherapy of intrathoracic neoplasms employing differential pelvic hypothermia. The basic idea of the technique is the protection of the hematopoetic system of the lower half of the body by local perfusion hypothermia, when large doses of cancerocidal agents are injected systemically to attack the relatively normothermic neoplasms in the thorax.

Much interest has been roused by the recently published work of Boerema[60] who has reported that deep hypothermia by means of surface cooling can be achieved without ventricular fibrillation in dogs who were submitted to 3 atmospheres oxygen in a high pressure tank. The dog heart was opened by atriotomy or ventriculotomy without any disturbance of the normal heart beat other than an occasional regular nodal rhythm. No extracorporeal circulation was required. The heart could be inspected from inside for a period of half an hour or longer. At three atmospheres pressure there is an enormously increased amount of physically dissolved oxygen not only in the blood but in the tissues and it is postulated that significant increased quantities of oxygen are available under these circumstances.

Summary

Hypothermia, properly controlled reduces metabolic rate, slows the heart and causes hypotension. With these physiological effects in mind it is suggested that hypothermia is a valuable adjunct to anesthesia and the indications for its use may be classified as follows:

1. To reduce oxygen need in acute or reversible conditions causing general or local hypoxia.
   - a. Postcardiac arrest encephalopathy.
   - b. Acute head trauma.
   - c. Deliberate temporary interruption of blood supply.
     - i. Total interruption, i.e., cardiac surgery.
     - ii. Regional interruption for surgery of the descending aorta, cerebral, hepatic or renal vessels.
   - d. Ischemic extremity.
2. To cause physiological hypotension and/or local hemostasis.
   - a. To diminish hemorrhage, i.e., brain surgery.
   - b. To counteract hypertensive crises, i.e., eclampsia.
3. To increase tolerance to hypotension, i.e., during deliberate reduction of blood pressure by hypotensive agents.
4. To specifically combat hyperthermia.
5. To decrease anesthetic or operative risk.
   - a. In presence of cardiac disease.
     - i. Tachycardia (slows heart rate).
     - ii. Cardiac dilation (mitral valve disease).
   - b. Liver disease (cirrhosis).
6. To facilitate transplantation of tissues.
7. For perfusion with carcinogenic substances.
8. For local application to produce analgesia.

REFERENCES

1. Armstrong-Davison, M. H.: Evolution of anaesthesia. Brit. J. Anaesth., 31: 134, 1959.

2. Harris, C.: Pain relief in burns. J.A.M.A., 174,: 1994, 1960.

3. van Harreveld, A. and Christensen, E.: Effects of temperature on the membrane potential of mammalian nerve. Acta Physiol. Pharmacol. Neerl., 6: 597, 1957.

4. Bullock, T. H.: Properties of a single synapse in the stellate ganglion of squid. J. Neurophysiol., 11: 343, 1948.

5. Stevenson, G. C., Collins, W. F., Randt, C. T., and Saurwein, T. D.: Effects of induced hypothermia on subcortical evoked potentials in the cat. Am. J. Physiol., 194: 423, 1958.

6. Lorente, De No R.: Studies from the Rockefeller Institute for Medical Research, 131: 132, 1947.

7. Cannard, T. H. and Zaimis, E.: The effect of lowered muscle temperature on the action of neuromuscular blocking drugs in man. J. Physiol., 149: 112, 1959.

8. Allen, F. M. and Crossman, L. W.: Refrigeration anesthesia and treatments. Cur. Res. Anes. & Analg., 22: 5, 1943.

9. Simpson, S. and Herring, P. T.: The effect of cold narcosis on reflex action in warm blooded animals. J. Physiol., 32: 305, 1905.

10. French, J. D., Verzeano, M., and Magoun, H. W.: A neural basis for the anesthetic state. Arch. Neurol. Psychiat., 69: 519, 1953.

11. Woodhall, B. and Reynolds, D. H.: Localized cerebral hypothermia. Proc. Soc. Exper. Biol. & Med., 97: 194, 1958.

12. Callaghan, J. C., McQueen, D. A., Scott, J. W., and Bigelow, W. G.: Cerebral effects of experimental hypothermia. Arch. Surg., 68: 208, 1954.

13. Parkins, W. M., Ben M., and Vars, H. M.: Tolerance of temporary occlusion of the thoracic aorta in normothermic and hypothermic dogs. Surgery, 38: 38, 1955.

14. Naizi, S. A. and Lewis, F. J.: Profound hypothermia in the dog. Surg., Gynec. & Obstet., 102: 98, 1956.

15. Gordon, A. S.. Jones, J. C., Luddington, L. G., and Meyer, B. W.: Deep hypothermia for intracardiac surgery; experimental and clinical use without an oxygenator. Am. J. Surg., 100: 332, 1960.

16. Bjork, V. O.: An effective blood heat exchanger for hypothermia in association with extracorporeal circulation but excluding the oxygenator. J. Thor. & C. V. Surg., 40: 237, 1960.

17. Rosomoff, H. L. and Gilbert, R.: Brain volume and cerebrospinal fluid pressure during hypothermia. Am. J. Physiol., 183: 19, 1955.

18. Rosomoff, H. L. and Holaday, D. A.: Cerebral blood flow and cerebral oxygen consumption during hypothermia. Am. J. Physiol., 179: 85, 1954.

19. Stone, H. H., Donnelly, C., and Frobese, A. S.: Effect of lowered body temperature on cerebral hemodynamics and metabolism of man. Surg., Gynec. & Obstet., 103: 313, 1956.

20. Ehrmantraut, W. R., Ticktin, H. E., and Fazekas, J. F.: Cerebral hemodynamics and metabolism in accidental hypothermia. Arch. Int. Med., 99: 57, 1957.

21. Bering, E. A., Jr. and Avman, M.: The use of hypertonic urea solutions in hypothermia. An experimental study. J. Neurosurg., 17: 1073, 1960.

22. Rosomoff, H. L., Shulman, K., Raynor, R., and Grainger, W.: Experimental brain injury and delayed hypothermia. Surg., Gynec. & Obstet., 111: 27, 1960.

23. Barbour, H. G., McKay, E. A., and Griffith, W. P.: Water shifts in deep hypothermia. Am. J. Physiol., 140: 9, 1943.

24. Williams, R. G. and Spencer, F. C.: The clinical use of hypothermia following cardiac arrest. Ann. Surg., 148: 462, 1958.

25. Hegenauer, A. H., Shriber, W. J., and Haterius, H. V.: Cardiovascular response of the dog to immersion hypothermia. Am. J. Physiol., 161: 455, 1950.

26. Berne, R. M.: Myocardial function in severe hypothermia. Circn. Res., 2: 90, 1954.

27. Hicks, C. E., McCord, M. C., and Blount, S. G., Jr.: Electrocardiographic changes associated with hypothermia and circulatory occlusion. Clin. Res. Proc. III, 2: 107, 1955.

28. Swan, H., Zeavin, I., Holmes, J. H., and Montgomery, V.: Cessation of circulation in general hypothermia. I. Physiological changes and their control. Ann. Surg., 138: 360, 1953.

29. Naizi, S. and Lewis, F. J.: The effect of carbon dioxide on heart block and ventricular fibrillation during hypothermia in rats and dogs. Surg. Forum, 5: 106, 1954.

30. Wilson, J. N., Marshall, S. B., Beresford, V., Montgomery, V., Jenkins, D., and Swan, H.: Experimental hemorrhage: The deleterious effect of hypothermia on survival and a comparative evaluation of plasma volume changes. Ann. Surg., 144: 696, 1956.

31. Hallett, E. B.: Effects of decreased body temperature on liver function and splanchnic blood flow in dogs. Surg. Forum, 5: 362, 1954.

32. Fisher, E. R., Fedor, E. J., and Fisher, B.: Pathological and histological observations in hypothermia. Arch. Surg., 75: 817, 1957.

33. Wynn, V.: Electrolyte disturbances associated with failure to metabolise glucose during hypothermia. Lancet, ii: 575, 1954.

34. Caranna, L. J., Telmosse, F. J., and Swan, H.: Effect of intravenous nutrient solutions on ventricular fibrillation in hypothermic dog. Arch. Surg., 76: 394, 1958.

35. Miles, B. E. and Churchill-Davidson, H. C.: Effect of hypothermia on renal circulation of dog. Anaesth., 16: 230, 1955.

36. Morales, P., Carbery, W., Morello, A., and Morales, G.: Alterations in renal function during hypothermia in man. Ann. Surg., 145: 488, 1957.

37. Andersen, M. and Neilsen, K. C.: Renal function under experimental hypothermia in rabbits. Acta Med. Scand., 151: 191, 1955.

38. Owens, J. C., Prevedel, A. E., and Swan, H.: Prolonged experimental occlusion of thoracic aorta during hypothermia. Arch. Surg., 70: 95, 1955.

39. Cockett, A. T. K.: An experimental study: an apparatus for regional kidney hypothermia. Surg. Forum, 11: 194, 1960.

40. McMillan, I. K. R. and Machell, E. S.: The technique of induced hypothermia. Brit. Med. Bull., 17: 32, 1961.

41. Virtue, Robert W.: Hypothermic anesthesia. C. C. Thomas, Springfield, 1955.

42. Dundee, J. W. and King, R.: Clinical aspects of induced hypothermia: methods of production and indications for its use. Brit. J. Anaes., 31: 106, 1959.

43. Blades, B. and Pierpont, H. C.: A simple method for inducing hypothermia. Ann. Surg., 140: 557, 1954.

44. Boerema, I., Wildschut, A., Schmidt, W. J. H., and Broekhuysen, L.: Experimental researches into hypothermia as an aid in the surgery of the heart. Arch. Chir. Neerl., 3: 25, 1951.

45. Delorme, E. J.: Experimental cooling of the blood stream. Lancet, ii: 914, 1952.

46. Brock, R. and Ross, D. N.: Hypothermia III. The clinical application of hypothermic techniques. Guy's Hosp. Rep., 104: 99, 1955.

47. Foltz, E. L. and Frederickson, E. L.: Venovenous shunt for rapid hypothermia. J. Neurosurg., 17: 618, 1960.
48. Gollan, F., Bloe, P., and Schuman, H.: Exclusion of the heart and lungs from circulation in the hypothermic, closed-chest dog by means of a pump-oxygenator. J. Appl. Physiol., 5: 180, 1952.
49. Pierce, E. C., III and Polley, V. B.: Differential hypothermia for intracardiac surgery: preliminary report of a pump-generator incorporating a heat exchanger. Arch. Surg., 67: 521, 1953.
50. Young, W. G., Jr., Sealy, W. C., Brown, I. W., Jr., Smith, W. W., Calaway, H. A., Jr., and Harris, J. S.: Metabolic and physiological observations on patients undergoing extracorporeal circulation in conjunction with hypothermia. Surgery, 46: 175, 1959.
51. Brown, I. W., Jr., Smith, W. W., Young, W. G., Jr., and Sealy, W. C.: Experimental and clinical studies of controlled hypothermia rapidly produced and corrected by a blood heat exchanger during extracorporeal circulation. J. Thor. Surg., 36: 497, 1958.
52. Drew, C. E., Keen, G., and Benazon, D. B.: Profound hypothermia. Lancet, i: 748, 1959.
53. Shields, T. W. and Lewis, F. J.: Rapid cooling and surgery at temperatures below 20° C. Surgery, 46: 164, 1959.
54. Parkins, W. M., Jenson, J. M., and Vars, H. M.: Brain cooling in the prevention of brain damage during periods of circulatory occlusion in dogs. Ann. Surg., 140: 284, 1954.
55. Kimoto, S., Sigue, S., and Asano, K.: Open heart surgery under direct vision with the aid of brain cooling by irrigation. Surgery, 39: 592, 1956.
56. Weiss, L.: Sensitivity of hypothermic mammals to x-irradiation. (A review.) Brit. Med. Bull., 17: 70, 1961.
57. Maheley, M. S., Jr. and Woodhall, B.: Effect of temperature upon the *in vitro* action of anti-cancer agents on VX-2 carcinoma. J. Neurosurg., 18: 269, 1961.
58. Shingleton, W. W., Parker, R. T., and Maheley, M. S., Jr.: Abdominal perfusion for cancer chemotherapy. Ann. Surg., 152: 583, 1960.
59. Young, W. G., Jr., Lesage, A. M., Dillon, M. L., Lee, J. M., Calaway, H. A., Jr., and Reeves, J. W.: Chemotherapy of intrathoracic neoplasms employing differential pelvic perfusion hypothermia. Ann. Surg., 154: 372, 1961.
60. Boerema, I.: An operating room with high atmospheric pressure. Surgery, 49: 291, 1961.

> *From the beginning of history there has been no great man who has not been eager for his titles and who had not hotly contested before the new generation, his right to glory. Very sad but very true is likely to be that bitter sentence of Rousseau's: "The wise man doesn't exist who fails to prefer the lie invented by himself to the truth discovered by another."*
>
> Ramon Y. Cajal, *Precepts And Counsels On Scientific Investigation.*

Peripheral Vascular Collapse—Physiological Basis And Current Concepts

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Introduction

Peripheral vascular collapse is usually thought of as a syndrome of the signs and symptoms of circulatory insufficiency not due to congestive heart failure. This pattern of peripheral failure may be associated with a wide variety of abnormal circumstances such as trauma, hemorrhage, burns, diabetic coma, dehydration, acute adrenal insufficiency, myocardial infarction, infection, intestinal obstruction, pancreatitis, and many others. When considered so broadly, as a common denominator of such diverse pathologic conditions, the essential characteristics of peripheral vascular collapse cannot be dealt with precisely. All that may be inferred is that many abnormal situations damage the vascular apparatus.

Failure of the peripheral circulation refers to a relatively clear-cut physiological entity which is not due to cardiac incompetence or defective central nervous regulatory mechanisms. Nor should it be confused with the final breakdown of the circulation from almost any cause of death. Decompensation of the terminal vascular bed implies a progressive, functional deterioration of that portion of the circulation distal to the major arteriolar resistance bed. This segment of the circulation is composed of vessels of microscopic dimensions. The microcirculatory bed, contrary to common belief, is a meticulously well organized vascular constituent of specialized functional and structural nature. Because the attributes of the microcirculation are not nearly so well recognized as those of the other components of the circulation it may be worthwhile briefly to review some of its essential features so that factors which have been implicated in its collapse can be considered in better perspective.

Organization And Function Of The Peripheral Circulation

While the heart, arteries and veins obviously compose major segments of the circulatory system, it is worth noting that they exist functionally for the single purpose of propelling, delivering and draining the blood from the microcirculatory bed which is the sole site at which tissue-blood exchange occurs. The microcirculatory bed[1–3] includes the terminal arterioles, metarterioles, precapillaries, true (endothelial) capillaries and the smallest venules (up to the size of the collecting venule.) All of these vascular elements are of capillary dimensions or only slightly larger. Collectively they comprise over ninety per cent of all the blood vessels, and serve as the structural and functional connecting link between arteries and veins. They are invested with varying modest amounts of smooth muscle in proportion to their distance from the arterial side except for the true capillary which has no muscular elements. Anatomical innervation extends only as far as the terminal arteriole. These vessels are not distributed haphazardly in the tissue, as is often inferred, but are organized in discrete units (Fig. I) which are based on the same structural module aligned in different patterns in the various tissues of the body. The basic module or capillary unit takes origin from the terminal arteriole which is one of the subdivisions of the

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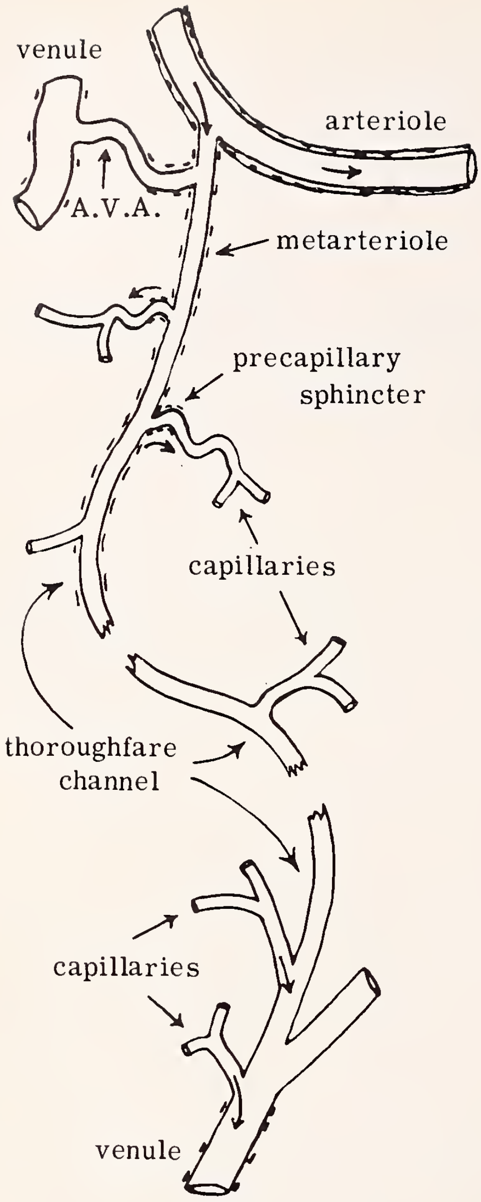

Figure I

Diagram of a functional unit of the capillary bed showing metarteriolar-venular anastomosis (A.V.A.) and indicating terminology for different structural components.

larger "resistance" arterioles. These terminal arterioles give rise to one or more metarterioles which are those vessels of the arteriolar tree which give origin to most of the side-branching numerous twigs which spill blood into the network of true capillaries. The metarteriole, of capillary dimensions, continues directly across to the venous side and is therefore a relatively straight, short, and continuous arterial stem which serves as "thoroughfare channel" through the capillary bed. Its side-branches, at their site of origin, are characterized by a short section of vessel invested by a few muscle cells arranged in sphincter fashion. These sphincter-like junctional sections of the metarteriolar branches are termed the pre-capillaries the direct continuations of which become the unmuscled endothelial true capillaries which in turn branch, anastomose and coalesce ultimately to drain into the smallest venules.

Unlike the larger vessels which are regulated for the most part by central neural mechanisms, the microcirculation is primarily regulated by humoral mechanisms of local or systemic origin. These humoral regulatory factors are both specific (adrenaline, nor-adrenaline, histamine, serotonin, acetylcholine, angiotonin, adrenal cortical steroids, etc.) and non-specific (local metabolic products possessing vaso-active properties—polypeptides). Functionally, the microcirculation exhibits a high degree of autonomy in relation to the activity of the other components of the circulatory system. This autonomy is a phylogenetic residuum from primitive animal forms and becomes of critical significance when the circulation of the more highly developed organism is challenged by severe stress.

The ebb and flow of blood through the capillary beds is an extremely variable entity governed, presumably, by the needs of specific tissues from moment to moment. During resting environmental conditions, the capillary beds are relatively ischemic with blood flow, for the most part, limited to the direct metarteriolar or thoroughfare channels. In any segment of tissue the capillary units are "active" intermittently so that at a given time relatively few units simultaneously exhibit active flow. In a basic sense the over-all flow and distribution of blood within the peripheral circulation is determined by the patterns of contraction and relaxation of the smooth muscle elements of its vessels. These muscular elements, are an exquisitely sensitive and coordinated functional entity which, depending upon specific tissue requirements, operate to: 1. Cause blood flow to by-pass the capillary unit entirely by diverting it through arteriolar-venular anastomoses or shunts. 2. Confine blood flow to the thoroughfare channels without allowing significant spilling into the many side branching true capillaries. 3. Permit blood to enter the true capillaries intermittently in varying amounts. The principal mechanisms whereby these muscular elements accomplish these patterns of blood flow and distribution are by vasoconstriction and vasomotion. The concept of vasoconstriction in vascular dynamics is generally familiar. But the phenomenon of vasomotion is less well appreciated and might be elaborated upon briefly because not only it is peculiar to the microcirculation but is also its most critical regulatory activity.

Vasomotion is the term applied to the coordinated cyclic pattern of muscular contraction and relaxation of the metarterioles and precapillaries. Normally, depending upon the tissues' requirements, these cycles have a distinct frequency and the relative duration of the phase of contraction to relaxation is similarly dependent. During the shorter contraction phase little blood perfuses the true capillaries. Conversely, during relaxation of the precapillary sphincters and metarterioles, capillary blood flow ensues and the tissues are perfused. In abnormal circumstances of circulatory stress vasomotion is characteristically augmented by cyclic frequency and in the relative prolongation of the contraction phase. This pattern of enhanced vasomotion in the peripheral bed serves to detour blood from the vast capillary network and facilitates its prompt return to the heart. Enhanced vasomotion thus aids the other parts of the circulatory system in their patterns of response (vasoconstriction, tachycardia, etc.) to stress. As such, increased vasomotion is an effective part of the over-all compensatory cardio-vascular adjustments to stress. But eventually, when the stress is prolonged and severe, this peripheral compensatory response is succeeded by a decompensatory stage marked by the gradual disappearance of vasomotion and sequestration of blood in the capillary beds.

Dynamics Of Peripheral Vascular Failure

With this brief description of the architecture and function of the microcirculation as a frame of reference, the hemodynamics of peripheral vascular failure can be usefully outlined.[4–6] It should be repeated, however, that microcirculatory failure, per se, is but the final common pathway through which stressful situations operate. While there is general agreement concerning the dynamics of this failure, there is much uncertainty concerning its basic etiology, the resolution of which is synonymous with the concepts and theories of peripheral vascular collapse.

Figure II is typical of many diagrams illustrating the cyclic sequence of events in systemic circulatory failure. This diagram also indicates the cycle of events in peripheral failure which from the hemodynamic aspect is a result of decreased blood flow to the tissues. Decreased tissue perfusion and its attendant microcirculatory failure can be initiated by a virtually limitless array of abnormal situations as previously indicated. Generally, these initiating factors may be of: 1. central vascular origin as in myocardial infarction or congestive failure; 2. systemic vascular origin as in hemorrhage, seepage of blood into tissues, dehydration (any condition which creates an imbalance between the volume of the circulating blood and the physical capacity of the bed); 3. of primary peripheral origin at the level of the microcirculation as from deep anesthesia, sepsis, vasculo-toxic drugs or toxemic damage to the liver or kidneys (any condition which interferes with vasomotion and the functional integrity or vascular smooth muscle.) Regardless of the initiating cause or the level of the circulatory system it affects, when the net effect is inadequate tissue perfusion, oxidative metabolism cannot be maintained. Vascular smooth muscle function deteriorates, the compensatory pattern of vasomotion gradually disappears, capillary filling becomes unrestricted, capillary stasis and even back-flow ensues. With such interference with aerobic tissue function the microcirculation, in a sense, functionally secedes from the rest of the circulatory system, in that its regulation becomes progressively more autonomous in an attempt to increase local blood flow by means of unrestricted capillary filling. Unfortunately this phylogenetically purposive readjustment in the peripheral bed is self-defeating in that the sequestration of blood within the microcirculation further embarrasses both itself and the systemic circulation.

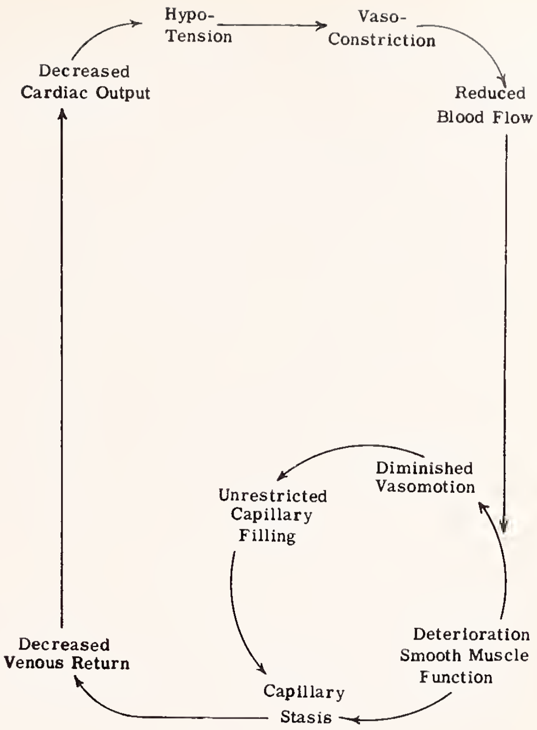

Figure II

Schematic representation of dynamic sequence in decompensation of systemic and capillary circulations.

The singular feature of peripheral vascular insufficiency is that while it can be initiated by a broad spectrum of abnormal conditions it develops into a self-sustaining destructive entity if uncorrected by therapy within a variable but relatively brief time interval. Ultimately microcirculatory failure becomes unresponsive to all known measures aimed at correcting its initiating causes (i.e. increasing cardiac output, correcting the discrepancy between circulating blood volume and vascular capacity or eliminating sepsis and specific vasotoxic elements). This functional deterioration of the stressed peripheral circulation apparently exhibits a much more limited capacity for effective recovery than the other major constituents of the circulatory system in terms of the duration and severity of the insult to which the cardiovascular apparatus is exposed. It should be emphasized that this typical pattern of peripheral failure does not necessarily occur in all tissues but shows a predilection for the visceral rather than musculo-skeletal structures. Within visceral tissues, failure develops variably in both time and intensity with the bowel, liver and kidney most prone to these congestive sequelae. Additionally it should be pointed out that the rapidity and extent of irreversible microcirculatory failure is also markedly influenced by the physical status of the individual, the magnitude of the stress, and the presence of such ancillary factors as infection, dehydration, toxemia, etc.

Pathogenesis Of Peripheral Vascular Collapse

As previously indicated, the factors which can initiate peripheral vascular failure are well recognized and the hemodynamics of this failure are reliably documented. But there is much uncertainty concerning the basic etiology of the self-sustaining characteristics of this phenomenon which has been the subject of continued, intensive research interest for almost a century. For it is this predilection of microcirculatory insufficiency to become self-perpetuating and impervious to corrective measures that makes this entity so lethal and of such practical as well as theoretical importance. In a real sense the elucidation of the mechanisms which sustain rather than initiate or describe peripheral failure is synonymous with the concepts and postulates of peripheral vascular collapse.

It would be hopelessly confusing to attempt to deal completely with the concepts of the basic etiology of the many conditions which interfere with blood flow to the tissues and which may initiate microcirculatory insufficiency of those cellular structures deprived of adequate blood perfusion. The clinical significance of many such conditions (vascular damage, thrombosis, venous obstruction, vasospasm, congestive failure, etc.) is focused elsewhere than on the insidious self-sustaining nature of peripheral failure. Perhaps the most common and important interest relating to primary failure of the peripheral circulation is in the phenomenon of shock. So that in terms of reviewing the concepts of primary peripheral vascular collapse, consideration of the factors and mechanisms which have been implicated as basic etiologic elements in the development of shock seems most pertinent. While confining ourselves to the shock syndrome may permit of a less fragmented analysis of microcirculatory failure, we shall still be dealing with an extremely elusive entity for which no unifying valid concept has, as yet, been developed.

Whatever else the shock syndrome may be, it is basically a syndrome of peripheral vascular failure. Based on the dynamics of this failure, shock is also an expression of impaired tissue function which is mediated by this microcirculatory disruption. So that within the tissues proper vascular insufficiency and impaired tissue activity develop as an interdependent tissue-vascular complex, the two components of which exist in a "chicken and the egg" relationship to each other. The actual mechanism governing the dynamics of the tissue-vascular complex is the smooth muscle of the small blood vessels of the capillary beds. Impaired functional integrity of vascular musculature leads to tissue hypoxia and altered tissue metabolic activity. In turn, hypoxia and altered tissue activity influences the reactive capacity of smooth muscle. A vicious cycle is thereby generated and peripheral vascular collapse ensues.

Factors which can validly be related to shock must, de facto, be shown to contribute to the genesis of this microcirculatory disruptive complex. While many single factors such as hemorrhage, increased capillary permeability, interference with vasomotor tone, reduced cardiac output, hypotension, extensive vasoconstriction, sepsis, toxin, etc., seemingly have the potential to produce shock, it is uncommon for any single such factor to result in collapse of the peripheral circulation. The majority of shock states involve a combination of precipitating factors which may or may not be clearly evident. Depending also upon the specific situations encountered (burn, hemorrhage, trauma, sepsis) as initiating circumstances, the decompensatory mechanisms which are triggered may vary or may be activated in different sequence in their evolution of the syndrome. In a sense, the shock syndrome and its attendant peripheral vascular collapse represents an extremely complex mosaic assembled from a virtually limitless array of known, inferred and unidentified initiating and sustaining parts. It is not remarkable, therefore, that a single valid hypothesis explaining the development of the syndrome has not yet been assembled.

Actually much is known about shock. But what is not established is the solution to the fundamental question as to whether the vascular collapse,* which is the coup de grace leading to a fatal outcome, devolves solely on the products of local tissue

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* (a) progressive stagnation of blood in the terminal bed; (b) inability to sustain blood pressure: (3) failure of transfusions to restore capillary flow; (4) fall in oxygen tension in the blood and tissues—particularly liver, intestine, kidney, spleen; (5) progressive rise in hematocrit; and (6) accumulation of vasotoxic materials in the blood stream.

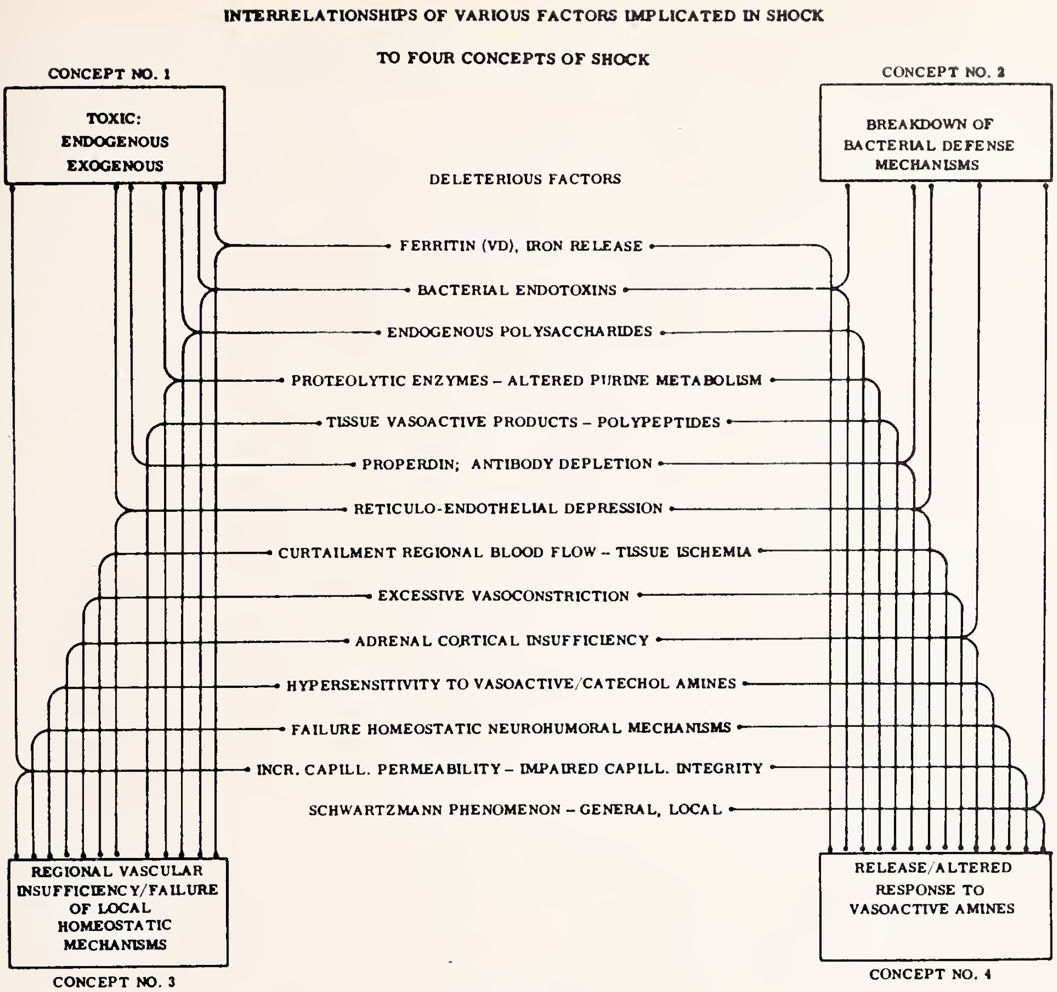
INTERRELATIONSHIPS OF VARIOUS FACTORS IMPLICATED IN SHOCK
TO FOUR CONCEPTS OF SHOCK
CONCEPT NO. 1
TOXIC: ENDOGENOUS EXOGENOUS
CONCEPT NO. 2
BREAKDOWN OF BACTERIAL DEFENSE MECHANISMS
DELETERIOUS FACTORS
FERRITIN (VD), IRON RELEASE
BACTERIAL ENDOTOXINS
ENDOGENOUS POLYSACCHARIDES
PROTEOLYTIC ENZYMES – ALTERED PURINE METABOLISM
TISSUE VASOACTIVE PRODUCTS – POLYPEPTIDES
PROPERDIN; ANTIBODY DEPLETION
RETICULO-ENDOTHELIAL DEPRESSION
CURTAILMENT REGIONAL BLOOD FLOW – TISSUE ISCHEMIA
EXCESSIVE VASOCONSTRICTION
ADRENAL CORTICAL INSUFFICIENCY
HYPERSENSITIVITY TO VASOACTIVE/CATECHOL AMINES
FAILURE HOMEOSTATIC NEUROHUMORAL MECHANISMS
INCR. CAPILL. PERMEABILITY – IMPAIRED CAPILL. INTEGRITY
SCHWARTZMANN PHENOMENON – GENERAL, LOCAL
REGIONAL VASCULAR INSUFFICIENCY/FAILURE OF LOCAL HOMEOSTATIC MECHANISMS
CONCEPT NO. 3
RELEASE/ALTERED RESPONSE TO VASOACTIVE AMINES
CONCEPT NO. 4

FIGURE III

This schema is illustrative of the text discussion. It does not include all known or inferred factors leading to irreversibility, nor all postulated concepts of shock.

hypoxia or on special circumstances not yet recognized. The various concepts and theories of the pathogenesis of shock essentially deal with the answer to this question. In this regard it is extremely important to recognize that none of the current concepts of shock are mutually exclusive of each other. Considerable overlap and interrelationship exists (Fig. III) among the critical factors implicated in the various theories of shock.

1. *Vasotoxic Factors*

Over the years a great many concepts of the toxemic origin of shock have been postulated (histamine, epinephrine, acidosis, clostridia, bacterial exotoxins, bacterial endotoxins, ferritin, kallikrein, etc.) Two of these continue to receive considerable experimental attention. One, developed during World War II on the basis of microcirculatory studies, postulated that, in shock, an endogenous vasotoxin was released in the liver. This toxin was subsequently identified as the iron-bearing protein, ferritin. The dynamics of the ferritin cycle in shock were meticulously explored eventually to develop into the hepato-renal hypothesis of shock. The other thesis, developed almost simultaneously, postulated the release, in shock, of bacterial endotoxins from the gram negative bacterial flora normally present in the bowel. This too, was extensively explored and led to the elaborate bacterial (endotoxin) concept of shock. Both of these theories assume a vasculo-toxic effect on the microcirculation mediated by an interaction between the toxin and the epinephrine normally present in the blood stream.

2. *Hepato-renal Concept*

This concept stemmed from the original observations of Chambers and his group on the behavior of the microvessels during shock.[7] The continuation of this approach by Shorr and his co-workers led to the intriguing hepato-renal concept[8] which was probably, at that time, the most sophisticated and meticulously documented hypothesis of the pathogenesis of shock. They demonstrated[9] in the blood of shocked animals, at the time the activity of the micro-vascular bed was still hyperreactive and compensatory, a polypeptide (VEM) of renal origin capable of potentiating the constrictor responses of small blood vessels to epinephrine. Renal production of VEM was stimulated by renal hypoxia. But as this hypoxia increased in duration and severity the kidney lost its capacity to elaborate VEM. During the hyporeactive or decompensatory stage, they showed that a substance VDM (later identified as ferritin) was released into the blood by the liver and was able to inhibit the constrictor responses of the microcirculation. The normal liver which detoxifies ferritin by aerobic mechanisms, was incapable of doing so in the hypoxic state and thus allowed its accumulation and spill-over into the blood stream. Further studies[10] of the metabolism of this iron bearing protein, ferritin, suggested that its depressant effects on the microcirculation were due to its capacity to catalyze the oxidative destruction of epinephrine to its non-vasoactive degradation products.

In the simplest terms the hepato-renal concept postulates that the VEM and VDM systems of the kidney and liver represent opposite components of a homeostatic mechanism for the regulation of peripheral blood flow. While this is a perfectly valid assumption it accounts for but one peripheral regulatory mechanism and by no means establishes these vasotropic substances, and the upset in their normal homeostatic relationship, as the critical disturbance in the peripheral vascular collapse in shock. Furthermore biochemical evidence concerning the intermediary metabolism of ferritin, particularly as related to the release of iron from its storage site, emphasizes that additional important liver enzyme systems such as xanthine oxidase and other proteolytic systems are involved even though their significance has not been pin-pointed. For this and many other reasons the vascular decompensatory phase of shock could not be ascribed to any such single set (VEM-VDM) of humoral factors. But it should be most emphatically pointed out that Shorr's very comprehensive investigation of the ferritin system provided both data and stimulus to direct attention, among other things, to the important roles of the catechol amines, reticulo-endothelial function and proteolytic activity, interest in which has, in turn, led to considerable provocative data.

3. *Bacterial Factor (Endotoxins)*

At about the time the hepato-renal hypothesis of shock was promulgated Fine and his associates were directing attention to the long recognized but poorly understood congestive and necrotic changes in the upper intestinal tract in shock. It was generally recognized that the bowel, because of its peculiar mural circulation[11] and the contents of its lumen (bacteria, toxic products of digestion and decomposition, enzymes, glandular, secretions, etc.) was potentially capable of contributing many toxic products to the blood when its mural integrity was injured by ischemic hypoxia. Against the background of this generalized assumption Fine's group has presented a large body of experimental evidence[12] that the ischemic intestine and its contents possessed specific attributes which lead to microcirculatory failure and irreversibility. This specific entity was the bacterial endotoxins from the existing intestinal flora which escaped into the blood because the normal intestinal barrier to their passage into the blood was disrupted by ischemic hypoxia.

This concept of endotoxemia was supported initially by experiments demonstrating that animals treated with oral antibiotics[13] before the onset of shock, were highly resistant to normally lethal hemorrhagic shock. Subsequently Fine's group presented extensive corroborative evidence that a deleterious substance was liberated from the bowel and that when this material was extracted from the blood it exhibited many properties of bacterial endotoxins. They published many reports elucidating the role of endotoxins in producing virtually every stigma of irreversible shock. Based on their studies Fine[14] further postulated that the irreversible aspects of shock were due to a breakdown of the body's antibacterial defense mechanisms. Inevitably a critical experimental reappraisal of the properties of endotoxins was undertaken by others. The exact nature of the materials liberated by the intestine was also reinvestigated. These reports, from several laboratories, indicated that while the intestine did liberate a vasotoxic factor, this was not unequivocably or exclusively endotoxin. In fact a toxic intestinal material was found in the portal vein of shocked animals reared under germ free[15] conditions. Furthermore, significant differences were reported in microcirculatory behavior in shock[16] as compared with endotoxemia. While there is little doubt that endotoxemia, when present, can exert a serious deleterious effect on the microcirculation and lead to irreversible shock, endotoxins seemingly do not represent the single critical etiological factor common to the various types of shock.

4. *Depression Of The Reticulo-endothelial System (RES)*

Most recently interest has developed in the role of the RES in the behavior of the vascular system in shock. The RES is usually regarded as widely distributed, poorly differentiated clusters of cells which serve primarily to phagocytize foreign materials and tissue detritus. But current study of the RES, of itself,[17] clearly indicates that the system participates in a whole host of important homeo-

Table I
Mechanisms Known to be Influenced by RES

- Antibacterial
- Leucocyte, Platelet and Fibrinogen Levels
- Phagocytic Clearance of Colloids
- Antibody, Properdin Levels
- Coagulation of Blood
- Blood Proteolytic Activity
- Intrahepatic Blood Flow
- Ferritin Inactivation—Iron Incorporation
- Blood Volume Regulation
- Reactivity of Microcirculation to Humoral Agents

static activities (Table I) some of which clearly relate to factors which may be implicated in shock. The RES of the liver (Kupffer cells) is directly involved in the inactivation of the toxic, ferrous form of ferritin.[18] Endotoxins are also detoxified[19] by the hepatic RES. In fact virtually every mechanism which has been postulated as participating in the development of peripheral vascular collapse and shock can be validly associated with RES function.

Unquestionably the liver, which houses the largest single component of the RES, suffers extensive functional hypoxic damage during protracted periods of hypotension and hypovolemia. Measurements of RES function in shock[20] demonstrate a markedly reduced phagocytic capacity of the Kupffer cells. This reduced phagocytic function persists for several days even in animals which recover from the shock episode. Other observations[21] also indicate that experimental depression of the RES, by injection of inert colloidal materials, renders animals much more sensitive to the lethal effects of trauma and hemorrhage. RES depression, in fact, has been shown not only to decrease the normal animals' resistance to shock stimuli but also will abolish all forms of the heightened resistance to shock which can be experimentally induced by many well recognized shock protective procedures. On the other hand, animals whose RES has been experimentally stimulated by various means to a higher than normal functional level also exhibit an increased resistance to shock stimuli.

Since means of evaluating the functional level of RES activity are mostly limited to measurement of its phagocytic capacity, it has not yet been possible to analyze other of its diverse functional activities sufficiently to pin-point any particular facet of RES behavior which predisposes the subject to stress. But because there is a relationship between the functional level of the RES and the degree of resistance to stress (especially in experimentally protected animals) some investigations have suggested that the RES is normally involved in the, as yet, unknown biological adaptive processes[22] which determine the character of the reaction to injury. Since the RES is biologically a primitive and adaptive tissue system, this thesis would be in harmony with virtually all of the divergent data on shock mechanisms in which the RES seems to be the only common denominator identified to date. In broadest terms this would mean that: (1) the body's over-all capacity to withstand stress resides in a broad battery of defense mechanisms which, when challenged, collectively readjust so as to adapt to the unfavorable environmental conditions (by attenuating their deleterious effects) so that the organism can survive, and that; (2) the RES houses some or all (?) of the components of these normal defense mechanisms. As part of this concept it must also be assumed that these adaptive defense mechanisms, when stimulated, are also of sufficiently generalized nature as to be able to cross react to make them effective in more than any one specialized type of injury. This is a biologically valid assumption. But here, again, as with all other concepts of microcirculatory failure and shock, the evidence suggests that the RES, while it is probably fundamentally concerned with the development of the syndrome, also involves some undisclosed critical aspect of the homeostatic adjustment to stress.

Concluding Comment

It should not be inferred that the foreging brief review of the concepts of shock and that form of peripheral vascular collapse which can, in simplest terms, be defined as shock, covers all of the theories and hypotheses which have been proposed. This analysis does, however, cover those concepts which have received most attention in recent years and which have been elucidated by extensive experimental data. Collectively these concepts cover a broad and fundamental approach to the dissection of the elusive entity of shock and as such touch on virtually every facet of the problem as it has been investigated in recent years. Despite the fact that no single explanation of the syndrome can yet reflect the seemingly endless number of homeostatic mechanisms which can contribute to the pathologic changes in different forms of shock, much important data has accumulated. It is probable that this data already includes the basic elements in the shock process. Still unresolved, however, is the relative importance of the physiological processes which integrate the participating homeostatic systems. Of much importance also, in terms of pointing to avenues to explore profitably, is the crystallization of the belief that host factors (intrinsic to the organism, per se,) which lead both to resistance and to increased susceptibility, are basic as opposed to extrinsic factors which are ancillary (even though the latter can undoubtedly predispose to the ultimate collapse of the microcirculation). The fact that these host factors are associated with changes within the tissues proper implies very directly that adaptive processes of local tissue origin are critically related to the responses of the terminal vascular bed in shock.

Summary

1. The structure and function of the peripheral circulation are briefly reviewed.

2. The dynamics of primary peripheral vascular decompensation are described.

3. Some of the current hypotheses of the mechanisms leading to irreversible shock and its attendant peripheral vascular collapse are presented.

REFERENCES

1. Chambers, R. and Zweifach, B. W.: Topography and function of the mesenteric capillary circulation. Am. J. Anat., 75: 173, 1944.
2. Zweifach, B. W.: Basic mechanisms in peripheral vascular homeostasis. Factors regulating blood pressure. Trans. Third Conf., Josiah Macy, Jr. Foundation, 1949, p. 13.
3. Nicoll, P. A. and Webb, R. L.: Vascular patterns and active vasomotion as determiners of flow through minute vessels. Angiology, 6: 291, 1955.
4. Hershey, S. G.: Current theories of shock. Anesthesiology, 21: 303, 1960.
5. Zweifach, B. W.: Microcirculatory derangements as a basis for the lethal manifestations of experimental shock. Brit. J. Anaesth., 30: 466, 1958.
6. Hershey, S. G., Zweifach, B. W., Chambers, R., and Rovenstine, E. A.: Peripheral circulatory reactions as basis for evaluating anesthetic agents. Anesthesiology, 6: 362, 1945.
7. Chambers, R. and Zweifach, B. W.: Blood-obrne vasotropic substances in experimental shock. Am. J. Physiol., 150: 239, 1947.
8. Shorr, E., Zweifach, B. W., Furchgott, R. F., and Baez, S.: Hepatorenal factors in circulatory homeostasis; tissue origins of vasotropic principles VEM and VDM, which appear during evolution of hemorrhagic and torniquet shock. Circulation, 3: 42, 1951.
9. Shorr, E., Mazur, A., and Baez, S.: Chemical and biological properties of the hepatorenal factors VEM and VDM (ferritin). Recent Progress in Hormone Research, 11: 453, 1955, Academic Press, Inc., N. Y.
10. Green. S., Mazur, A., and Shorr, E.: Mechanism of catalytic action of adrenaline by ferritin. J. Biol. Chem., 220: 237, 1956.
11. Baez, S.: Microcirculation in intramural vessels of small intestine in rat. Trans. Fifth Conf. on Microcirc. Physiol. & Pathol., Buffalo, 1959, p. 114. Univ. of Indiana Press, Urbana, Ill.
12. Fine, J.: The bacterial factor in traumatic shock, Springfield, Ill., Chas. C. Thomas, 1954.
13. Fine, J., Frank, E. D., Ravin, H. A., Rutenberg, S. H., and Schweinburg, F. B.: Bacterial factor in traumatic shock. New England J. Med., 260: 214, 1959.
14. Fine, J.: Host resistance to bacterial infection in traumatic shock. Brit. J. Anaesth., 30: 485, 1958.
15. Zweifach, B. W., Gordon, H. A., Wagner, M., and Reyniers, J. A.: Irreversible hemorrhagic shock in germ-free rats. J. Exper. Med., 107: 437, 1958.
16. Zweifach, B. W. and Thomas, L.: Relationship between vascular manifestations of shock produced by endotoxin, trauma and hemorrhage; certain similarities between reactions in normal and endotoxin tolerant rats. J. Exper. Med., 106: 385, 1957.
17. Halpern, B. N. (Editor): Pathophysiology of the reticuloendothelial system (Symposium sponsored by Council for International Organizations for Medical Sciences). Springfield, Ill., Chas. C. Thomas, 1957.
18. Baez, S., Srikantia, S. G., and Carlton, A.: Cellular sites of hepatic ferritin activation and inactivation. Am. J. Physiol., 192: 181, 1958.
19. Fine, J., Rutenberg, S. H., and Schweinburg, F. B.: Role of the reticulo-endothelial system in shock. J. Exper. Med., 110: 547, 1959.
20. Zweifach, B. W. and Benacerraf, B.: Effect of hemorrhagic shock on phagocytic function of Kupffer cells. Circulation Res., 6: 83, 1958.
21. Zweifach, B. W., Benacerraf, B., and Thomas, L.: Relationship between vascular manifestations of shock produced by endotoxin, trauma and hemorrhage; possible role of reticuloendothelial system in resistance to each type of shock. J. Exper. Med., 106: 403, 1957.
22. Hershey, S. G.: Adaptation: the key to the shock problem. Canadian Anesthet. Soc. J. 8:529, 1961.

Physiological Factors Concerned In The Anesthetic Management Of The Pregnant Cardiac

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Rational analgesic and anesthetic management of the cardiac parturient requires an understanding of the cardiovascular and pulmonary effects of pregnancy. Anesthesiologists are aware of the many changes in normal pregnancy which influence anesthesia, such as altered intra-abdominal pressure and the mechanical effects of the gravid uterus; but we are concerned here with those changes in the cardiorespiratory systems which contribute to the special problem of the cardiac patient.

The earliest contributions to this problem were made by Michel Peter (1874), who recognized an increase in pulmonary blood volume during pregnancy and stressed the risks of pregnancy in the cardiac.[1] Auguste Berthiot, a student of Peter, continued in this interest, and tried to understand the basic physiological changes of pregnancy and their effect on the circulation.[2] He recognized hemodilution and increased blood volume, believing the latter continued right up until delivery and was relieved by the moderate hemorrhage in the third stage. In England, Angus Macdonald (1878) pursued a parallel interest; he knew of the increase in maternal blood volume and reasoned that it was associated with an increase in cardiac output, stroke volume, and work.[3] He also observed that the vital capacity was unchanged during pregnancy, and reported 19 deaths among 31 cardiac pregnancies collected from the literature and his own experience. He emphasized a tendency toward abortion and premature labor among cardiacs, and the occurrence of sudden death during parturition or in the postpartum period due to "pulmonary congestion". He suggested termination of pregnancy and the use of "all legitimate means . . . to lessen the effects of the down-bearing efforts" during the second stage. Many of these early speculations have withstood the test of time. In 1921, nearly 50 years later, Sir James Mackenzie pointed out a remarkable lack of progress after MacDonald's time.[4] Since then, many well-known physicians have been associated with the problems of cardiac pregnancy; the names Newell, Huntington, Paul Dudley White, Breed, Hamilton, Burwell, and others come to mind. Hamilton, over a 28 year period, documented 850 cases and showed a decline in maternal mortality from 15 per cent in the 1920's to 3 per cent in 1940 at the Boston Lying-in Hospital; his work laid the foundation for the rational care of the pregnant cardiac as it has developed during the last two decades.[5]

The environment provided by the placenta and uterus of viviparous mother is the basis of growth and development of the fetus. Provision for the fetus *in utero* involves complex changes in structure and function. The associated general physiological changes will be discussed because they are essential to understanding the management of the pregnant cardiac. Many of the cardiovascular changes resemble those seen in an arteriovenous fistula; and the anatomy of the placental circulation, as well as the hemodynomic changes at delivery, lend credence to this basic idea:

1. Heart rate, measured under basal conditions, rises from early pregnancy and reaches a peak at about the seventh or eighth month. The peak pulse

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rate is 8 to 10 beats above normal. The implication of this slight tachycardia becomes clear when one considers the importance of 12-15,000 extra heart beats per day in the cardiac;[6, 7]

2. Basal arterial blood pressure observations show some variations but no *significant* change in the systolic. There is, however, a slight fall in diastolic pressure which is lowest at the 30th week.[7] The maximum pulse pressure is attained in the eighth month; and a decrease in mean arterial pressure has been demonstrated.[5] This is probably attributable to a decrease in peripheral resistance, which is suggested in the concept of the placenta as an arteriovenous shunt;

3. Venous pressure in the arms is usually within normal limits but with the patient supine rises 10 to 15 cm. (water) in the legs by term. This is due to an increased flow of blood into the inferior vena cava from the uterine veins and to obstruction of venous return from the legs by the gravid uterus;[7]

4. The basal cardiac output, which is closely related to the cardiac work, has been reported to increase as much as 50 per cent during pregnancy.[8] It rises to about the 30th week and then diminishes somewhat (but does not reach normal) toward term. The approximate average maximum increase of cardiac output is about 32 per cent.[5] The peripheral resistance changes inversely as the cardiac output, reaching its lowest level as one might expect when cardiac output is highest.[6] Since the cardiac output increases out of proportion to the pulse rate, there is also an increase in stroke volume which reaches a maximum between the seventh and eighth months. Since cardiac output increases more than total oxygen consumption,[9] the arteriovenous oxygen difference falls, with no relationship to fetal size or weight. The fall in cardiac output, heart rate, and blood volume at the end of pregnancy is associated with an improvement in symptoms in the cardiac patient during the last two months of pregnancy. There is thus a reserve of cardiac strength at the time of delivery;

5. Organ blood flow also changes. It is significant that hand blood flow increases, perhaps because the metabolically active fetus must lose heat through the mother.[9, 10] (This increased flow may be observed as a visible capillary pulsation by applying a glass slide to the palm with moderate pressure.) Spider angiomata are also observed, usually only above the diaphragm.[11] The skin changes of the pregnant women are similar to those seen in liver cirrhosis, apparently being related to a great increase in circulating estrogenic substances derived from the placenta. The rupture of vascular aneurysms of splenic, cerebral, and other vessels is more common during pregnancy.[12] All these findings suggest that pregnancy may open arteriovenous connections and alter vessel structure. There is a great increase of blood flow in the uterus, which has been measured at caesarean section (500cc. per minute in single pregnancies).[13] Not all the factors controlling this flow are understood, nor has the resistance of the placental bed been actually measured. To the best of current knowledge, the high flow through the inter-villous spaces is supplied with no sacrifice in blood supply to other organs;

6. Total blood volume increases to an average maximum 22 per cent above the non-pregnant normal, while red cell volume increases less, resulting in a lower hematocrit.[14] The changes in total blood volume follow those in cardiac output, while the red cell mass continues to increase until term. Continued water retention to term may be related to the action of female hormones on the renal tubules.[5] It has also been suggested that the placental hormones may have an indirect action through the pituitary.[15] Whatever its basis, the change in body water and in plasma volume is of profound significance in the cardiac patient;

7. Other circulatory changes include a decreased circulation time, up to about 32 weeks,[5] an increase in cardiac volume, and a change in cardiac position leading to minor alterations in the electrocardiogram.[16]

Measurements of the various cardiovascular factors have been made under basal conditions, and they are not apparently related to work or to exercise. The development of the placental vascular bed has much to do with maternal circulatory dynamics; and its structure and function are compatible with the best possible diffusion between the maternal and fetal circulation.

Respiration, a function in which cardiacs often show symptoms, also undergoes significant changes. There is a progressive rise in maternal oxygen consumption during the last two trimesters, and oxygen consumption is about 15 per cent greater near term than in the post-partum period.[7] This 15 per cent apparently supplies the needs of the fetus and the increased maternal metabolism. Not only do certain specific maternal tissues become more active; but there is a rise in thyroid activity[2] and in total body surface. There is an increase in inspiratory capacity which is greater than a concomitant decrease in expiratory reserve,[17] causing a slight increase in vital capacity; and an associated 20 per cent decrease in residual lung volume also occurs. Pregnant women are frequently more aware of their breathing, but dyspnea (that is, uncomfortable awareness of the necessity of breathing) is not common. Although the actual work of breathing is increased, the need for extra pillows at night is related to a greater upward pressure of the diaphragm rather than to pulmonary congestion; many patients who need extra pillows at night awaken in the morning fully recumbent with no respiratory difficulty.[17] There is thus a parallel between obesity, pregnancy, and recumbency in their respiratory effects.

Hyperventilation results from an increase of minute ventilation which is greater than the increased oxygen consumption, so that the alveolar pCO^2 falls during pregnancy, reaching a level of 30 mm Hg compared to the normal of 40.[18, 19] This change occurs early, before changes in lung volume can be demonstrated; it is similar to the hyperventilation which occurs normally in the post-ovulatory phase of the menstrual cycle.[20] The decrease in residual lung capacity (*v.s.*) contributes to the efficiency of hyperventilation in lowering carbon dioxide tension. The increase in minute volume is related to greater depth rather than rate of respiration. Apparently lower carbon dioxide tension is essential to the fetus. Pregnancy then places an increasing demand upon maternal cardiac and respiratory function at rest, as well as that in exercise due to the increment in weight. Furthermore, oxygen requirements during exercise seem greater than can be accounted for by weight gain alone. The minute ventilation response to any standard exercise test is greater in pregnancy; in the same way, cardiac output rises disproportionately with exercise. These changes may become crucial in cardiac pregnancy.[21]

At the end of pregnancy the cardiovascular system must adjust quickly to the physiological changes associated with labor and delivery. There is first an intermittent occlusion of the placental circulation with contractions and then permanent occlusion with the third stage of labor. The Valsalva maneuver, with great hemodynamic effects, also occurs with bearing down contractions. Oxygen consumption rises during labor depending on the frequency and duration of uterine contractions. The oxygen consumption in an average labor approaches that of moderate muscular exercise,[22] while more frequent and prolonged contractions make it comparable to severe exercise. Oxygen consumption does not fall immediately after delivery, suggesting that the patient is in oxygen debt. The heart rate rises at the beginning of uterine contractions and slows during the part of the contraction when the placental blood flow is reduced or occluded. There is a tachycardia during delivery. A consistent 30% rise in cardiac output during uterine contractions has been suggested (from analysis of arterial blood pressure tracing);[23] and cardiac output in the immediate post-partum period is 13 per cent above nonpregnant levels, declining to normal within about two weeks.[5] A rapid decrease in plasma volume and body water in the first few days after delivery is apparently related to venous pressure changes.[24]

Anesthetic Management

Mindful of the changes of pregnancy and parturition one may arrive at a rational approach to the management of analgesia and anesthesia in the cardiac. In the first place it is apparent that both mental and physical strain must be minimized in order not to increase metabolic demands unduly (according to the principles applied to the treatment of all cardiacs). Pregnancy does not alter the general indications in medical management of cardiacs; therefore, in the early stages of labor, barbiturates or narcotics (or both) are to be recommended in whatever amounts may be considered safe for the baby. If such medication proves inadequate, other means of controlling pain with its associated emotional and physical strain must be sought. It is clear that the use of scopolamine, which will produce tachycardia and in no way diminish physical effort, should be avoided. When it is felt that the strain of labor is too great for the cardiac patient, long acting spinal or continuous epidural anesthesia is a favorable choice to control pain and minimize stress. It is also important in the pregnant cardiac to avoid the profound cardio-vascular effects of bearing down in the second stage, and spinal and epidural anesthesia are well adapted to this purpose as well.

After delivery there is a rapid effective increase in blood volume, physiologically speaking, due to sudden closure of the placental shunt. At this time cardiac work increases rapidly with an associated bradycardia. This is a danger point for the cardiac patient. The benefits of spinal and epidural anesthesia at this time in producing vaso-dilatation in the legs need hardly be stressed. Under this type of anesthesia the cardiovascular system is allowed to adapt more gradually to the hemodynamic changes following delivery because pooling of blood in the lower extremities for a period of time occurs.

Successful management of the patient with heart disease during pregnancy requires an accurate knowledge of her cardiac lesion and of her functional capacity. Analgesic and anesthetic management must be planned to keep the cardiac burden of parturition as low as reasonable. By restriction of activity and diet, by regulation of rest and sleep, and by careful supervision, successful pregnancy is possible for nearly all cardiacs. The patient who has meticulous ante-partum care is usually well prepared for labor and tolerates it well. If episodes of failure occur during the last trimester, early induction of labor may be indicated; in such cases continuous caudal or lumbar epidural technique for labor and delivery is favorable for both the mother and the baby.

Labor and delivery are often easy and rapid in the cardiac, although this is by no means uniformly the case. When delivery is immediately anticipated and time does not permit the use of regional techniques, the cardiac parturient usually fares reasonably with simple inhalational anesthesia supplemented by perineal infiltration or pudendal block if required. The administration of high concentrations of oxygen by such conservative means as they will tolerate *without distress* is helpful regardless of anesthetic method, and it will tend to diminish cardiac and respiratory work. After the stress of delivery and the immediate postpartum hemodynamic adjustment is past, the diuresis of early convalescence and the diminishing cardiac work contribute to an apparent improvement in the cardiac status. Patients who have tolerated pregnancy poorly, even those who have required digitalization, frequently adjust well and carry on normal activities in the non-pregnant state apparently compensated and without the need for cardiac drugs.

Summary

The careful use of sedative and narcotic drugs during labor in the cardiac parturient is desirable; drugs which will produce tachycardia should be avoided. While the use of regional anesthesia (particularly spinal and epidural) in the management of pain and in the prevention of bearing down in the second stage is a physiologically sound method and contributes to a smooth obstetrical course for these mothers, light general anesthesia may turn out well especially when labor is rapid and easy. The administration of high concentrations of oxygen is recommended, regardless of anesthetic method.

REFERENCES

1. Peter, M.: Accidents that may happen to pregnant women suffering from disease of the heart. Brit. M. J., 2: 289, 1874.
2. Berthiot, A.: Grossesse et maladies du coeur. These pour le doctorate en medicine. A. Parent, Imprimeur de la faculte de medicine, Paris, 1876.
3. Macdonald, A.: On the bearings of chronic disease of the heart upon pregnancy and parturition. Obs. J. of Great Brit. & Ireland, 5: 73, 145, 217, 289, 353, 417, 489, 1877-1878.
4. Mackenzie, Sir James. Heart Disease and Pregnancy. (Oxford Medical Publication.) Henry Frowde & Hodder & Stoughton, London, 1921.
5. Hamilton, B. E. and Thomson, K. J.: The heart in pregnancy and the childbearing age. Little, Brown & Co., Boston, 1941.
6. Brehm, H. and Kindling, E.: Der Kreislauf wahrend Schwangerschaft und Wochenbett. Archiv. f. Gynak., 185: 696, 1955.
7. Burwell, C. S., Strayhorn, W. D., Flickinger, D., Corlette, M. B., Bowerman, E. P., and Kennedy, J. A.: Circulation during pregnancy. Arch. Int. Med., 62: 979, 1938.
8. Lindhard, J.: Uber das Minutenvolum des Herzens bei Ruhe und bei Muskelarbeit. Arch. f. d. ges. Physiol., 161: 233, 1915.
9. Abramson, D. I., Flachs, K., and Fierst, S. M.: Peripheral blood flow during gestation. Am. J. Obst. & Gynec., 45: 666, 1943.
10. Burt, C. C.: Peripheral skin temperature in normal pregnancy. Lancet, 2: 787, 1949.
11. Bean, W. B.: The cutaneous arterial spider: a survey. Medicine, 24: 243, 1945.
12. Sheehan, H. L. and Falkiner, N. M.: Splenic aneurysm and splenic enlargement in pregnancy. Brit. M. J., 2: 1105, 1948.
13. Metcalf, J., Romney, S. L., Ramsey, L. H., Reid, D. E., and Burwell, C. S.: Estimation of uterine blood flow in normal human pregnancy at term. J. Clin. Investigation, 34: 1632, 1955.
14. Caton, W. L., Roby, C. C., Reid, D. E., Caswell, R., Maletskos, C. J., Fluharty, R. G., and Gibson, J. G., II: The circulating red cell volume and body hematocrit in normal pregnancy and the puerperium: by direct measurement, using radioactive red cells. Am. J, Obst. & Gynec., 61: 1207, 1951.
15. Abramson, J. and Tenney, B.: Cardiac disease in pregnancy. New England J. Med., 253: 279, 1955.
16. Hollander, A. G. and Crawford, J. H.: Roentgenologic and electrocardiographic changes in the normal heart during pregnancy. Am. Heart J., 26: 364, 1943.
17. Cugell, D. W., Frank, N. R., Gaensler, E. A., and Badger, T. L.: Pulmonary function in pregnancy. I. Serial observations in normal women. Am. Rev. Tuberc., 67: 568, 1953.
18. Goodland, R. L., Reynolds, J. G., and Pommerenke, W. T.: Alveolar carbon dioxide tension levels during pregnancy and early puerperium. J. Clin. Endocrinol. Metab., 14: 522, 1954.
19. Heerhaber, I., Loeschcke, H. H., and Westphal, U.: Eine Wirkung des Progesterons auf die Atmung. Pfluger's Arch. f. d. ges. Physiol., 250: 42, 1948.
20. Goodland, R. L. and Pommerenke, W. T.: Cyclic fluctuations of the alveolar carbon dioxide tension during the normal menstrual cycle. Fertil. & Steril., 3: 394, 1952.
21. Widlund, G.: The cardio-pulmonal function during pregnancy: a clinical-experimental study with particular respect to ventilation and oxygen consumption among normal cases in rest and after work tests. Acta obst. et gynec. Scandinav., 25: Suppl. 1, 1945.
22. Sampson, J. J., Rose, E. M., and Quinn, R.: Estimation of the work of obstetric labor and its significance in heart disease. Am. J. Obst. & Gynec., 49: 719, 1945.
23. Hendricks, C. H. and Quilligan, E. J.: Cardiac output during labor. Am. J. Obst. & Gynec., 71: 953, 1956.
24. Brown, E., Sampson, J. J., Wheeler, E. O., Gundelfinger, B. F., and Giansiracusa, J. E.: Physiologic changes in the circulation during and after obstetric labor. Am. Heart J., 34: 311, 1947.

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Connecticut Medicine

As of May 1, 1962, a change in the management of CONNECTICUT MEDICINE takes place.

The Literary Editor who heretofore has been concerned with the procuring and processing of scientific articles, now becomes the Editor with sole responsibility for all material appearing in CONNECTICUT MEDICINE.

The position of Managing Editor has been abolished and the financial supervision of the publication has been placed in the hands of the General Manager of the Connecticut State Medical Society.

We believe that these changes are good for CONNECTICUT MEDICINE and for the Connecticut State Medical Society.

The old order gives way to the new with all good wishes for continued success and development of CONNECTICUT MEDICINE.

D. S. O'C.

A New Theory Of General Anesthesia

In a recent paper in Science,[1] Dr. Linus Pauling presents a theory of general anesthesia based upon the concept that it is possible to understand many biological phenomena in terms of the structure of molecules and their interaction with one another. Already much progress has been made in the field of somatic and genetic aspects of physiology but not to psychobiology. The nature of encephalonic mechanisms, consciousness, memory, narcosis, sedation and similar phenomena might be clarified through such an approach. He points out that consciousness and ephemeral memory involve electric oscillations in the brain and that permanent memory involves a material pattern in the brain in part inherited by the organism instinct and in part transferred to the material brain from the electric pattern of the ephemeral memory.

The electric oscillations in the electroencephalogram depend upon the state of consciousness and the nature of the encephalonic activity of the subject. The ephemeral memory which is rarely longer than a few minutes is electrical in nature. Thus it has been noted that unconsciousness produced by a blow on the head or an electric shock, causes complete memory loss for events experienced during the previous ten-fifteen minutes. Also formation of new permanent memories is interfered with when the brain loses some ability to carry on metabolic processes involving proteins as in old age or Korsakoff's psychosis, protein starvation, thiamin deficiency. In such instances, the memory seems to persist only so long as conscious attention is directed to it.[2]

What can be the exciting mechanisms and supporting structure of ephemeral memory? The supporting structure of course is the brain, with its neuroglial cells, neurones and synaptic interneuronal connections. These determine the nature of the electric oscillations, and the energy may be assumed to derive from the activity of the exciting mechanisms and the impedance of the neural network. When consciousness is lost as in sleep or narcosis, it may be due to either a decrease in activity of the exciting mechanism or of an increase in impedance of the supporting network of conductors or both. Pauling believes that sleep results from a decrease in activity of the exciting mechanism and that many sedatives similarly act to decrease it. Similarly stimulants like caffeine increase specifically the exciting mechanisms. As far as general anesthetics are concerned, like cyclopropane, chloroform, nitrous oxide, halothane, they operate by increasing the impedance of the cephalonic network of conductors, and this increased impedance operates at the synaptic regions, by formation of hydrate microcrystals formed by crystallization of the encephalomic fluid. These crystals trap some of the electrically charged side chain groups of proteins and some of the ions of the encephalonic fluid. In this way, they interfere with their freedom of motion which reduces their contribution to electric oscillations. This restricts the level of electrical activity of the brain to that characteristic of anesthesia or unconsciousness even though there is continued activity of the exciting mechanisms. The view then emerges that the hydrate microcrystals may decrease the chemical reactions by preventing molecules from coming close enough to one another to react and at the same time decreasing catalytic enzyme activity in the neighborhood of their active sites.

Some anesthetic agents are designated as physical anesthetics because they do not enter into chemical reactions of forming and breaking ordinary chemical bonds. Such are chloroform, halothane, nitrous oxide, carbon dioxide, ethylene, cyclopropane, sulphur hexafluoride, nitrogen, argon and zenon. With few exceptions none of these form even weak hydrogen bonds and are nonhydrogen bonding anesthetic agents. All of these form hydrated crystals of varying sizes and compartments.

The hydrated crystals of the anesthetic agents by themselves would either not form or else would not be stable even if they did and since narcosis occurs at body temperature and persists, if the theory is correct, there must be some stabilizing agent other than the anesthetic also operating. What can these be? Pauling believes they could be side chains of protein molecules and solutes in the encephalomic fluid. He points out that substances resembling charged side chains of proteins also interact to form hydrate crystals with a structure very similar to the hydrate crystals formed by anesthetic agents. Anything which would cause hydrate crystals in the synaptic regions of the brain would increase the impedance of the neural network and thereby decrease energy of the electric oscillations. It is likely that the narcosis that occurs at 27°C does just this to protein molecules of the encephalomic fluid and that hibernation also produces unconsciousness by formation of hydrate crystals as the temperature falls.

Other theories of anesthesia like the lipid one appear less attractive to Pauling than the hydrate microcrystal theory. First, because the brain is 78 per cent water and only 12 per cent lipids and 8 per cent proteins. The water contains ions and the proteins with their electrically charged side chains and therefore might be expected to be involved in the electric oscillations that constitute consciousness. The lipids on the other hand function as insulating materials with electrical properties that are little changed by the pressure of the anesthetic agents. Moreover if one postulates that the change in phase from liquid to hydrate microcrystal occurs, then it becomes easy to understand how a great change in properties which will occur under such circumstances, can produce a large change in encephalomic activity. Such a change in phase for the lipids could not be expected.

It seems likely that several kinds of microcrystals are formed in brain tissue and that they are variously stabilized by anesthetic agents of different classes, the small molecules fitting into a small crystal and the layer molecule anesthetic agent entering a larger hydrated crystal. It might be expected that agents of different classes by fitting into microcrystals of different sizes would act synergistically and that a mixture of anesthetic agents would act better to produce narcosis than any one substance alone. Perhaps magnesium acts as an anesthetic by stabilizing hydrate microcrystals.

The hydrate microcrystal theory of anesthesia clearly suggests that the anesthetic agents should act on all tissues and not just on brain and nerve tissue. Claude Bernard a century ago said just that. "An anesthetic agent is not just a special poison of the nervous system; it anesthetizes all elements, all tissues by numbing them, temporarily blocking their irritability." In fact, many studies of the effect of anesthetic agents on physiological processes other than thinking have already been reported.[3a+b]

The proposed theory—the hydrate microcrystal theory of anesthesia by non-hydrogen bonding agents—will undoubtedly permit many predictions to be made about the effects of anesthetic agents in changing the properties of brain tissue and other substances, and will make possible the design of new experiments that will disprove the theory or provide substances for it.

L.H.N.

REFERENCES

1. Pauling, L.: A molecular theory of general anesthesia. Science, 134: 15, July 7, 1961.

2. Virtue, R. W. and Weaver, R. H.: The mild anesthetic properties of sulphur hexafluoride. Anesthesiology, 13: 605, Nov. 1952.

3a. Heilbroun, L. V.: Mecanism de la narcose. Collog. intern centre natl. resherche sci. Paris, 1951, p. 163.

3b. Johnson, J. H., Eyring, H., and Polissar, M. J.: The kinetic basis of molecular biology. Wiley, New York, 1954.

Teaching Of Diabetes In Hospitals

Because of its prevalence and chronicity, diabetes mellitus is the continuing concern of all physicians. An essential part of treating the condition is teaching the patient how to live with it.

The American Diabetes Association is focusing its attention on teaching of diabetes in hospitals as the first link in an educational program which would not only be of value in the initial education of a new diabetic, but can also be most helpful to both patient and physician in the subsequent years of management.

The Hartford Hospital has for many years maintained a daily diabetes teaching program for inpatient instruction as well as a once-weekly diabetes outpatient clinic. This system of patient instruction has been of value to the physician and the diabetic community for the past thirty years—a model worthy of every general hospital in Connecticut.

BARNETT GREENHOUSE

Subsidized Suicide

He who rides the tiger dare not dismount.
—OLD FRENCH PROVERB

I

The American Hospital Association has indicated its willingness to ride the tiger. During a special called meeting of the AHA house of delegates at Chicago in January, representatives of the nation's hospitals said formally that some form and amount of federal funds were necessary to insure proper care for the aging, that Blue Cross should administer this program, and that they were, therefore, not disposed to concede the necessity of the King-Anderson proposal as such at this time.

The Mississippi Hospital Association opposes compulsory care for the aging under Social Security and sent an instructed delegate to the AHA meeting. The Mississippi Hospital and Medical Service, our Blue Cross-Blue Shield, opposes the program, too. Both organizations have been forceful spokesmen against the socialization of medicine and hospital services and in working effectively for voluntary, private financing of medical care costs. And while neither subscribes to the thinking of their liberally inclined colleagues on these counts, they are both destined to feel the effects of a decision they did not make, *if* and *when* this die is cast.

For those committed to support of the private practice of medicine, voluntary financing of medical care costs, and to opposing the extravagant, unnecessary program of compulsory care under Social Security, it is difficult to rationalize the position of the American Hospital Association. Almost nobody denies the dedication of hospital people to their worthy calling. Few will disagree that the economic problems of hospital service are crucial, demanding the utmost in management skills, Surely, able and competent hospital leaders recognize that there is a price to be paid for federal money in federal programs just as there is a price to be paid for goods and services in a free economy.

II

It is difficult to understand why any voluntary prepayment or health insurance plan needs subsidy from any source. And some of the most encouraging gains are being made in the over-65 age group because 53 per cent of all such senior Americans now have private, voluntary health coverage. The 1961 score on all age groups is enormously impressive: 132 million have hospital plans; 123 million, surgical; 88 million, medical; 27 million, major medical; and 42 million, assured income during illness. Does this state of affairs cry out for subsidy?

And for those who need help, there are sound locally controlled programs. Kerr-Mills is working and it will work even better if given half a chance. Private philanthrophy in its many forms is not to be discounted nor are nonfederal programs of care for the indigent found at municipal, county, and state levels.

Some seem to forget other means, apart from out-of-pocket payment, for financing health care. None of these relates to federal funding, either. Personal accident policies protect 6.5 million Americans and another 20.5 million have so-called dread disease coverage. Accidental death and dismemberment contracts offer financial assurances to 21 million while 130 million Americans have incorporated some form of financial benefit during illness and disability in their life insurance programs. Countless millions are indirectly, but nonetheless positively, protected against stated disease and injury conditions by liability and workman's compensation insurance.

And to top it off, as much as $100 per week may be excluded from federal income taxes during illness.

III

Since Blue Cross is the largest single program in this vast scheme of voluntarism, leaders of the American Hospital Association could hardly conclude that they are selling a service in a declining market. Second, they surely recognize the increasing ability and willingness of Americans to provide for themselves in health maintenance. Finally, it seems that they should appreciate fundamental political facts of life.

To conclude that a need exists for direct federal subsidy for any age group's health care without local political control and a probing means test is to buy the King-Anderson principle with a sugar frosting. The proponents of compulsory federal health programs appear to have little regard for the means by which their goals are achieved and if there's a moral to this, it's the critical matter of dismounting from the tiger.

By no stretch of the imagination is the least of dangers implicit in AHA's decision the tragic possibility that nobody on the health care team will prevail. The house divided is vulnerable, indeed, and the King-Anderson-Cohen-Ribicoff-Reuther crowd will make the most of any opportunities to consummate socialized medicine.

IV

So the thesis is this: in seeking solutions to your problems, don't subsidize your own suicide. If you're winning the game 5 to 2 in the seventh inning, it is not necessary to forfeit to the other team.

Responsible leaders of the Mississippi Hospital Association and the state's Blue Cross plan know that any direct federal health program will erode away the gains in voluntary prepayment. They have so spoken and theirs is an example for their counterparts in other states to follow.

Roland B. Kennedy,
Executive Secretary
Mississippi State Medical Association

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The Acetyl Choline (ACh) System And Local Anesthetics

For over a century it has been known that electric currents (action currents) propagate impulses along nerve and muscle fiber. This is one way by which messages are transmitted by way of the nervous system, from one part of the organism to another distant one. In this century Overton in 1902 suggested that ions are the carriers of these currents and that during activity Na+ moves into the cell interior and an equivalent amount of K+ moves to the outside. Since the introduction of radioactive ions, quantitative measurements became possible which confirmed Overton's idea. We are still, however, left with the question as to what mechanism is responsible for the generation and propagation of the bioelectric currents and how the ionic movements across the membrane of conducting fibers is precisely controlled. If the reaction were a purely physical one, there should be no heat production in the process. In fact, heat production does coincide with electrical activity and it was necessary to search for a chemical system which enables the conducting membrane to make use of the ionic concentration gradient for this special function. We used to call it the electrochemical apparatus without knowing what it is.

Most of our ideas that helped to clarify the phenomenon have come from biochemical analysis of a powerful bioelectric generator found in the electric eel whose discharge amounts to 600 volts and contains 5-6,000 cellular units arranged in series. It was possible with the aid of advanced biochemical methods to isolate three proteins which are associated specifically with the function of Acetylcholine (ACh) and study their properties in solution. 1. ACh esterase an enzyme that inactivates ACh by splitting it into two inactive parts choline, and acetate. 2. Another enzyme choline acetylase that forms ACh and 3. A receptor protein with which ACh specifically reacts in the elementary process of conduction.

The old idea under the name neurohumoral transmision considered ACh as a mediator of impulses between cells. As a result of Nachmansohn's[1] recent work, we have come to view the role of ACh in a new and novel light. It actually has an intramembraneous effect with the specific function of controlling ionic movements during activity. It does this by changing the conductance of the membrane not merely at synapses, but along axones and muscle fibers. Thus the role of ACh may be pictured as follows: In the resting condition it is bound in a storage form and is inactive. Any stimulus, electrical or other, which reaches the membrane, causes the complex to dissociate, freeing the ACh which then acts on the receptor protein to change its configuration and this, by increasing the conductance of the membrane, removes the barrier to the flow of ions and a rapid flow of ions results. The receptor protein is returned to a resting state, when free ACh is attacked by ACh esterase. In the resting state the receptor protein acts as a barrier for ion movement. Further recovery involves resynthesis of ACh by another enzyme choline acetylase. This ACh system as it is called is probably structually organized within the membrane, the protein members being located a few angstroms distance, thereby enabling the process to be extremely fast, precise and efficient.

There are compounds notably insecticides and nerve gases which block ACh esterase activity. These are organo-phosphorous compounds which replace ecetylating enzymes by a phosphorylating one which does not allow ACh to be formed. A substance that can displace the phosphoryl group from the enzyme should be an antidote if Nachmansohn's hypothesis is correct. Pyridoxine-2-aldoxine methiodide (PAM) is just such a substance and has proved to be an extremely powerful reactivator. It has saved many thousands of Japanese workers who inadvertently were poisoned by an insecticide parathion that was widely used to protect the rice crop.

There are many substances which block electrical activity but do not affect the ACh esterase reaction. Such substances are those which bind the receptor protein and block electrical activity to the same degree as they bind the receptor protein. When procaine, tetracaine, dibucaine were compared as to their effectiveness in blocking electrical activity, great differences were found but their potency strikingly paralleled their binding strength of the receptor protein in solution. The local anesthetics with formulae close to that of ACh are truly competitors of ACh for the receptor protein when ACh cannot combine with the receptor protein then generation and propagation of electric currents ceases and nerve activity is blocked.

The clarification of the factors involved in production and propagation of electrical impulses has begun to pay off dividends in the most unexpected places. Antidotes to insecticides and nerve gas and recognition of the basis of action of local anesthetics are of extraordinary practical importance. Now it will be possible to design new structural modifications of these drugs thereby making them more efficient and more suitable in practical medicine. There is no better example, in which basic science pursued for its own sake, has yielded such rich practical dividends.

L.H.N.

REFERENCE

1. Nachmansohn, D.: Nerve activity explained by biochemical analysis. J.A.M.A., 179: 639, Feb. 24, 1962.

The Hematocrit

This valuable test is frequently called upon for various types of information which it cannot give. For example, it has been widely used to evaluate relative hydration in burns, shock and bleeding. It has also been used as a screening test for routine examinations to evaluate the presence and degre of anemia. Several aspects of these uses bear discussion.

1. Is the hematocrit (particularly by micro techniques) substantially more precise (reproducible) than the erythrocyte count or hemoglobin values? It is *not.*

Values for the 3 standard deviation (3SD) (level of reproducibility with 99.7 per cent confidence) for microhematocrit vary from .63[1] to 2.67[2] absolute units or 1.4 per cent to 6.17 of normal [43.2 per cent of packed red cells[3]]. The 3 SD value for hemoglobin is almost universally found to be .5 gm. or 3.3 per cent of normal (15 gm.) by the widely used cyanmethemoglobin technique.[3] Although figures for erythrocyte counting by electronic methods vary considerably a 3 SD value of 6 per cent at a level of 5,000,000 cells is reasonable.[4] All 3 of these commonly used tests can now be performed rapidly and easily on small quantities of blood.

2. Will the hematocrit detect changes in circulating plasma more exactly than the other tests? It will *not.* In any acute gain or loss of plasma the erythrocytes do not shrink nor expand nor gain nor lose hemoglobin. Changes in relative amount of plasma per unit of whole blood will be reflected equally by any of the tests.

3. Will the hematocrit indicate acute changes in total blood volume or plasma volume? *Not necessarily.* For example in burns there is considerable oozing of plasma at the injured body surface, but there is also destruction of erythrocytes. It is possible for a stable normal hematocrit (or hemoglobin, or erythrocyte count) to reflect an equal loss of both elements in a patient rapidly entering irreversible shock from blood loss. For this reason "rule of thumb" replacement of blood and plasma is often more accurate than replacement based on the laboratory tests under discussion.

4. Is the hematocrit a better "screening" test for routine admission studies than hemoglobin or erythrocyte determinations? It is *not.* If one tabulates the commonest abnormalities in erythrocytes and hemoglobin the usual combinations follow:

(Greatest changes in parenthesis)

	Hb.	*Ht.*	*RBC*
Acute plasma loss	↑	↑	↑
Acute blood loss	↓	↓	↓
Chronic blood loss	(↓)	↓	↓
Iron deficiency states	(↓)	↓	↓
Hemoglobinopathies	(↓)	↓	↓
Macrocytic anemies	↓	↓	(↓)

It is evident that in these six situations the hemoglobin is most likely to be abnormal in three, the erythrocytes in one, and in two all the parameters vary together. In advanced disease any test will be abnormal; in early disease the hemoglobin is most often first to diminish. It would seem therefore that routine hemoglobin testing is the most useful test for evaluation of oxygen-carrying capacity of whole blood and for detection of minimal anemias. If abnormally low or high hemoglobin is found, all three tests should be employed for complete study. For following the course of shock or blood loss any of the three determinations discussed are of equal utility when determined by the methods mentioned above.

R. B.

REFERENCES

1. Strumia, M. M., Sample, H. B., and Hart, E. D.: An improved microhematocrit method. A. J. Clin. Path., 24: 1016, 1954.
2. McGovern, J. J., Jones, A. R., and Steinberg, A. G.: The hematocrit of capillary blood. N. E. J. Med., 253, 308, 1955.
3. Wintrobe, M.: Clinical Hematology, 5th edition, 1961, Lea and Febiger, Philadelphia, Pa.
4. This corresponds closely to our latex particle control sample at the Norwalk Hospital.

THE PRESIDENT'S PAGE

The Connecticut State Medical Society is entering another new year. As your newly elected President I wish to thank each member of the Society for his and her confidence and trust. The responsibilities are manifold and I assure you that I shall fulfill these responsibilities to the best of my ability. The care of the sick is our avowed ambition. The preservation of medical principles and protection of the integrity of our profession must be maintained.

Never was our profession faced with so many problems vital to the practice of medicine. These problems are local, state wide, national and international. It is not a question where might is right or where political parties succeed for personal gain; but a problem of high ethical status. All people old, young, or whatever socio-economic condition deserve good medical care without humiliation. We have been given many statements which are not reasonable. Remember that there is no truce between falsehood and truth. The medical profession is flexible to truths but rigid to situations which are fuzzy, doubtful and tinted with unsound socio-economical statements.

During the past three years we have fought for the free choice of physicians and hospitals. The doctors and the public have been awakened to the fact that these choices in a free country belong to individuals of all classes as an individual right. Government legislation, insurance companies, Blue Cross, CMS, hospital associations and local communities are beginning to recognize this factor as one of the inalienable symbols of our great country.

The officers of the Connecticut State Medical Society are firmly determined to follow a road of scientific approach with sound reasoning to give health care to the well-to-do and to the indigent alike. The Council likewise is willing to give many hours of consideration to the problems ahead and present the deliberations to you in Connecticut Medicine. It is hoped that the County Associations will as in the past discuss and give opinions regarding the problems at the grass root level. Furthermore, your President anticipates that all members of the Connecticut State Medical Society will be willing to give some time for the promotion of organized health programs for all peoples in our state. Permit me to submit for your attention only three of the current problems which confront Connecticut Medicine: The care of our senior citizens, the political invasion of medicine and our response with the development of Connecticut Medical Political Action Committee; and the unsettled problem with CMS relative to the Preferred Contract. The adjudication of these problems requires time, patience, and sound reasoning.

Clyde L. Deming, M.D.

FROM THE GENERAL MANAGER'S OFFICE

WILLIAM R. RICHARDS, M.D., *General Manager*

James G. Burch
Director of Public Relations

160 St. Ronan Street, New Haven, Conn.
Telephone UN 5-0587

Josephine P. Lindquist
Assistant to General Manager

COUNCIL MEETING

Wednesday, March 14, 1962

A meeting of the Council was called to order by the Chairman, Dr. Ralph L. Gilman, at 2:00 P.M. on Wednesday, March 14, 1962. Present in addition to the Chairman were: Drs. Feeney, Deming, Goldberg, Hess, O'Connor, Caplan, Cullen, Garner, Scully, Wilson, Ogden, Bradley, Cornwell, Grant, Murray, Jr., Purnell, Gorman, Martin, Davis, Phillips, Hastings. Also present: Mrs. Lindquist, Mr. Burch and Dr. Richards. Absent were: Drs. Katzin, Rentsch, Gevalt, Egan, and Chartier.

APPROVAL OF MINUTES. The minutes of the meeting of February 15 were approved as printed.

EXEMPTION FROM DUES.

a. It was VOTED to postpone action on the request of Vernon E. Thomas, Jackson Heights, New York that he be exempted from payment of 1962 dues a/c postgraduate education. Oliver J. Purnell, Councilor from Tolland County, is seeking information from Dr. Thomas as to the expected duration of his postgraduate training period.

b. It was VOTED to exempt Theodore R. Dayton, West Redding, from payment of dues a/c physical disability, such exemption to remain in effect unless and until Dr. Dayton is able to resume his usual practice.

c. It was VOTED to exempt Richard J. Cobb, Norfolk, from payment of dues during the period 1962-64 a/c postgraduate education.

d. It was VOTED *not* to exempt Kurt F. Schmidt, New Haven, from payment of dues for the reason requested.

COMMITTEE ON MEDICAL EDUCATION AND LICENSURE. It was VOTED to authorize reimbursement of Joseph A. Fiorito, New Haven, in the amount of $205.40 for expenses incurred by him in representing this Committee at the 58th Annual Congress on Medical Education and Licensure, Chicago, February 3-6, 1962.

LITERARY EDITOR OF CONNECTICUT MEDICINE. A "thank you" note was received from Louis H. Nahum, New Haven, in acknowledgment of flowers sent to him on behalf of the Council during his recent hospitalization.

ADVISORY COMMITTEE ON SCHOOL HEALTH. Allan C. Mermann, Chairman of this Advisory Committee, joined the Council to provide background information on two resolutions pertaining to school health education and school physical education which the Committee had requested the Council to adopt. After hearing Dr. Mermann's explanatory remarks, it was VOTED to adopt two resolutions which read as follows:

I — *School Health Education.*

WHEREAS: The health of Connecticut children and youth is a concern of physicians in the state; and

WHEREAS: the present and future health of young people can be promoted through education; therefore be it

RESOLVED: that the Connecticut State Medical Society affirm its belief that a planned program of health education should be an integral and basic part of the curriculums of every elementary and secondary schools; and be it further

RESOLVED: that the Connecticut State Medical Society urges members of county and local medical associations to work cooperatively with health and education officials in the interest of such programs.

II — *School Physical Education.*

WHEREAS: programs in physical education, including athletics, help children and youth to develop strength, skill, endurance and other attributes of fitness; and

WHEREAS: precautions are needed to protect the health of those engaging in vigorous activities; therefore be it

RESOLVED: that the Connecticut State Medical Society encourages the organization and conduct of planned physical education for all pupils in elementary and secondary schools; and be it further

RESOLVED: that the Connecticut State Medical Society urges members of county and local medical associations to work with school officials in developing such programs and in establishing desirable safeguards to health.

Dr. Mermann agreed to provide the General Manager's office with the names and addresses of individuals and agencies to which notification of this action of the Council should be sent.

REPORT OF INVESTMENT COMMITTEE. Isadore S. Goldberg, Treasurer, presented a report on consultations the Committee had held with an investment counsellor representing the Second National Bank of New Haven. It was VOTED to accept the Committee's Report as information, and it was further VOTED to refer the development of an investment program for the Society back to the Committee for further study and report, the report to contain specific recommendations as to the setting up of such a program.

STATE HOSPITAL PLANNING COMMITTEE. Responding to a request from the General Manager for information regarding a proposed State Hospital Planning Committee, now under consideration by a Governor's Committee on Hospital Planning, Albert W. Snoke, Chairman of the Governor's Committee informed the Council that the formation of a State Committee was still in the planning stage, and that the Society would be kept up to date on the progress of this project as it develops. It was VOTED to receive Dr. Snoke's letter as information, and it was further VOTED to request Franklin M. Foote, State Health Commissioner, to convey to the Council his views as to the need, desirability and function of a State Hospital Planning Committee of the type now under consideration by the Governor's Committee.

RESOLUTION FROM THE EENT SECTION. On recommendation of the Society's Section on EENT and the Committee on Eye Care, it was VOTED to adopt the following Resolution: Re: Connecticut Eye Bank and Visual Research Foundation, Inc.

RESOLVED: That the Council of the Connecticut State Medical Society endorse the Connecticut Eye Bank and Visual Research Foundation, Inc., so long as the following provisions are adhered to:

1st: An ethical and effective method of collecting tissue must be developed and maintained.

2nd: All tissue received (a) shall be made freely available to all qualified surgeons for transplantation purposes (b) or in lieu thereof, shall receive thorough study by a pathologist, particularly trained in Ophthalmic Pathology, and (c) all such tissue shall be made available to all recognized medical and teaching and research institutions.

3rd.: The medical direction and the publicity programs of this eye bank shall be controlled by a board of medical men, qualified by the standards of the Connecticut State Medical Society and EENT Section.

4th.: The fulfillment of these provisions shall be evidenced by periodic reports to the Connecticut State Medical Society.

The Eye Bank is sponsored by the Odd Fellows of Connecticut, and is to be located at the New Britain General Hospital in New Britain. The Secretary of the EENT Section, the Secretary of the Odd Fellows' Board of Directors and the Administrator of the New Britain General Hospital are to be notified of this action of the Council.

REPORT OF GENERAL MANAGER. An informal report, titled: "To Meet Or Not To Meet A Challenge", was received and considered. Prepared by the General Manager, the report dealt with some over-all observations on trends in the financing of health care, the expansion and extension of the Service Benefits principle of fixed substandard payments for doctors' services, and the ways in which other medical organizations throughout North America are trying to deal with these matters. It was VOTED that a Committee be appointed, consisting of the President as chairman, the Chairman of the Council, the General Manager and the members of the Committee on Third Party Payments, to study the report and to seek to draft a basic policy for the Society with respect to all third party agencies, such policy to be formulated at the earliest possible time. It was further VOTED that if the Committee has developed concrete proposals in this area of medico-economics prior to the Annual Meeting of the House of Delegates on May 2nd, the Committee consult with the Subcommittee on Bylaws with a view to introducing suitable recommendations of the Committee as amendments to the Bylaws.

CONNECTICUT MEDICAL SERVICE, INC.

a. It was VOTED *not* to publish in CONNECTICUT MEDICINE an article, titled: "An Amendment to the Preferred Contract", prepared by Mr. John Coolidge, President of CMS. It was the opinion of the Council that since this article was specific, rather than general, had direct bearing on the Amendment to the Preferred Contract shortly to be submitted to the membership for approval, and was neither entirely factual nor a complete picture of the situations at hand, its publication in CONNECTICUT MEDICINE might appear to be an endorsement of its point of view by the Council.

b. The Council received as information a communication from the President of CMS in which it was stated that the Board of Directors preferred that the physician members of the Board not join the Council exclusively at the time the Amendment to the Preferred Contract is considered, offering instead the suggestion that the entire CMS Executive (Liaison Committee) be invited if further information on the Amendment was sought by the Council. For this reason, the physician members, previously invited by the Council, did not attend.

c. The minutes of the joint CSMS-CMS Liaison Committees meeting on February 1, 1962 were reviewed by Dr. Gilman. He emphasized especially that portion of the minutes which described the advice given to the CMS representatives as recommended by the Council. In part, this read: ". . . the Board was urged to give consideration to the advisement of the CSMS liaison representatives and seek to amend the contract in (other) ways which would benefit CMS members, particularly those of limited means (such as the aged), without increasing the income limits or increasing payments to physicians." The minutes of the liaison meeting were received as information.

d. Titled: "The Relationship of the State Insurance Department with CMS, Inc", a composite of information on this matter excerpted from material in the Society's files, was presented to assist the Council in arriving at a reasoned conclusion as to whether or not the Insurance Commissioner has the statutory authority to insist on changes being made in existing CMS contracts, and whether or not he brought pressure to bear on the CMS Board to amend the Preferred contract, as has been done, under such real or implied authority. The conclusions arrived at appeared to be that : (1) the Insurance Commissioner does *not* have the statutory authority to order changes made in existing CMS contracts, (2) that he *did* bring pressure on the CMS Board to amend the Preferred Contract, more or less as is now being presented to the members of the Society for approval, and that (3) yielding to his demands by either the CMS Board or the CSMS membership on this occasion will establish a precedent which will enable the Commissioner to direct the future contract policy of CMS in any manner he desires.

e. The Amendment to the Preferred Contract, approved and submitted by the CMS Board of Directors, was examined. It was VOTED that the contractual changes outlined in the material submitted be ruled to be "in complete detail and final form" for purposes of initiating consideration of the Amendment by members of the Society, as called for by the "Method" adopted for such consideration by the House of Delegates on April 28, 1959. It was further VOTED that in transmitting the Amendment to the component county medical associations, notation be made that the Council disapproves the Amendment and the reasons therefor, and that at regular or special meetings of each county association called for the purpose of acting upon the Amendment, one or more Council representatives be present to convey the Council's evaluation of the Amendment and to provide other pertinent information to the membership. The General Manager was directed to take promptly all steps necessary to initiate and complete consideration of the Amendment in the manner prescribed in the "Method". It was further VOTED that the President, the Chairman of the Council and the General Manager draw up an informational statement which will adequately reflect the expressed opinions of the Council with respect to the Amendment, and that this statement be transmitted to all members of the Society via a general mailing.

f. A copy of the CMS Bylaws, including amendments through February 20, 1962, was furnished each member of the Council as information.

REPORT OF COMMITTEE ON POSTGRADUATE EDUCATION. Having been requested by the Council to consider the question of whether this Committee could take on the additional duty of establishing and maintaining local and regional liaison with the AMA Council on Medical Education and Hospitals, Arthur Ebbert, Chairman, reported that the Committee would be willing to take on this assignment, if the Council desired, but pointed out that amendments to the Bylaws would have to be made if it were to do so. In addition, he made it clear that the Committee is not in agreement with the views expressed in the report of members who recently represented the Society at a regional liaison meeting conducted by the AMA Council. After considerable discussion, it was VOTED to direct the Chairman of the Council to appoint a special subcommittee of the Council to investigate the desirability of setting up a separate committee to establish and maintain liaison with the AMA Council on Medical Education and Hospitals, and that the existing Committee on Postgraduate Education *not* be assigned this liaison function with AMA.

RESOLUTION ON "HEALING ARTS" FROM NEW HAVEN COUNTY MEDICAL ASSOCIATION. The Board of Governors of the New Haven County Medical Association adopted the following resolution on January 25, 1962, and transmitted it to the Council for consideration:

"WHEREAS: Osteopathy, Chiropractic, Naturopathy and Faith Healing are not modalities of healing practiced by or familiar to the members of the Connecticut State Medical Society, and

WHEREAS: The Connecticut State Department of Finance and Control annually requests the State Society's Advisory Committee to the Commissioners of Welfare, Finance and Control to pass upon its fee schedule for the Healing Arts, which includes the above-named modalities as well as that of Medicine, and

WHEREAS: The approval of this fee schedule by the CSMS Advisory Committee has the effect of condoning these forms of healing, therefore be it

RESOLVED: That the New Haven County Medical Association recommends to the Council of the Connecticut State Medical Society that it advise the Society's Advisory Committee to the Commissioners of Welfare, Finance and Control to concern itself only with that part of the Department of Finance and Control's fee schedule for the Healing Arts which concerns the practice of medicine."

It was VOTED to refer this resolution to the special committee appointed under Item 9, which is charged with the responsibility of drawing up a basic policy for the Society toward all third party agencies, the intent of this resolution to be taken into consideration in the deliberations of that committee.

ATTENDANCE OF WOMAN'S AUXILIARY MEMBERS AT NATIONAL CONFERENCES. Responding to a request submitted by the President of the State Woman's Auxiliary that the Auxiliary be advised as to the desirability of its members attending national conferences on legislation and other subjects, it was VOTED to inform Mrs. Rosenbaum that the Society encourages the attendance of Auxiliary members at such meetings and that, under normal circumstances, the expenses incurred by this attendance be paid by the Auxiliary. It was further VOTED to direct the General Manager to communicate with the AMA, requesting that officers of the Auxiliary be advised directly by AMA as to the place and date of national meetings at which attendance by Auxiliary members would be interesting and educational.

AMA-NATIONAL BLUE SHIELD "SENIOR CITIZEN CONTRACT". Having studied a comparison between the CMS Preferred and Special Individual Contracts, held by more than 116,000 over-65's in Connecticut, and the nationally-administered program recommended by AMA and National Blue Shield, it was VOTED to refer the question of setting up the national plan in Connecticut to the next joint meeting of the CSMS and CMS Liaison Committees.

ADVISORY COMMITTEE ON MEDICARE PLAN. Having received suggestions from Henry A. Archambault, Chairman, that this Committee could probably be disbanded and its duties taken over by other committees of the Society and CMS, it was VOTED to advise Dr. Archambault that while his suggestions had merit, the legal and administrative difficulties attendant to attempting to disband the committee as he suggests appear to be too great to warrant action at this time.

RIDER TO EXTENDED PLAN OF CONNECTICUT BLUE CROSS. It was brought to the attention of the Council that a Rider to the Blue Cross Extended Plan was now being sold throughout the State. This Rider makes payment to hospitals for out-patients services, in most of which the services of a doctor of medicine or a subordinate acting on his direction may be involved. Looking upon this relatively unpublicized addition to Blue Cross programs as another example of the intrusion of the hospital into the province of the private medical practitioner, it was VOTED to obtain legal advice on the question of whether this type of "corporate practice" by hospitals is permissible under existing Connecticut statutes.

THE CONNECTICUT MEDICAL COMMUNITY. A progress report on implementation of the Connecticut Medical Community, prepared by the Public Relations Director, was received as information. It was VOTED to commend Mr. Burch on his report.

RESOLUTION ON POLIOMYELITIS PROGRAM PAMPHLETS. On recommendation of the Committee on Public Health, and subject to the discretion of the Managing Editor of CONNECTICUT MEDICINE, the following resolution was adopted:

RESOLVED: That the Council of the Connecticut State Medical Society actively promote information about and distribution of the "Babies and Breadwinners" (polio immunization program) booklet, approved by the Council 6/21/61, by giving the booklet publicity in CONNECTICUT MEDICINE in order to encourage members of the Society to read it and to urge them to obtain and use this and other promotional materials on poliomyelitis vaccination, available through the Connecticut Department of Health.

REPORT OF THE NOMINATING COMMITTEE. Dr. Gilman presented the report of the Nominating Committee, including nominations for officers, divisional boards, committees, representatives, etc.

OFFICERS. It was VOTED to accept the report of the nominating committee, as amended, as follows:

For President-Elect—Morris P. Pitock, Bridgeport.
For Vice-President—Ralph L. Gilman, Storrs.
For Secretary—Orvan W. Hess, New Haven.
For Treasurer—Ralph T. Ogden, Hartford.
For Speaker of the House — Michael R. Scully, Bridgeport.
For Vice-Speaker—Clifford E. Wilson, Norwich.
For AMA Delegate—James R. Cullen, Hartford.
For Alternate AMA Delegate—Stewart P. Seigle, Hartford.
For AMA Delegate—Ellwood C. Weise, Sr., Bridgeport.
For Alternate AMA Delegate — Max Caplan, Meriden.
For Councilor-at-large — Denis S. O'Connor, New Haven.
For Editor of Connecticut Medcine (ex-officio) —Louis H. Nahum, New Haven.

Boards, Committee, etc. With few amendments, it was VOTED to accept the report of the Nominating Committee as presented.

AMA NATIONAL LEGAL CONFERENCE. It was VOTED to request the Chairman of the Conference Committee with the Connecticut Bar Association and the Chairman of the Committee on Medical Economics and Insurance (or designated members of their committees) to attend this AMA conference to be held at the Drake Hotel in Chicago on May 18-19, 1962, the Society to pay usual expenses incurred by such attendance.

REQUEST FROM THE COMMISSIONER OF HEALTH. It was VOTED to request the Committee on Public Health to study Commissioner Foote's request that "an advisory committee on cardiovascular diseases for the state department of health" be developed, and to recommend to the Council the type and membership of such a committee in order that Dr. Foote may be assisted in this matter.

PLANNING GROUP FOR CONFERENCE ON REGULATIONS FOR LICENSING HOSPITALS. It was VOTED to accept as information a progress report on this Planning Group filed by Leopold M. Trifari, Chairman of the Committee on Hospitals, who, with Maxwell O. Phelps, Hartford, are acting as the Society's representatives to this project. Dr. Trifari reports that the Conference will be held in the Spring of 1962 and that a large number of agencies concerned will be asked to send representatives.

REQUEST FOR LEGAL COUNSEL. A request was presented from Noah Barysh, Chief of Staff at the New Milford (Conn.) Hospital, that the Society provide legal counsel in a rather complicated matter involving staff, nursing and administrative procedures at the New Milford Hospital. It was VOTED to refer this matter to the Committee on Hospitals for careful study and report, with particular emphasis to be placed on whether this constitutes a problem within the jurisdiction of the Society.

HOUSE OF DELEGATES MEETING. It was VOTED to hold a social hour for members and guests of the House of Delegates, immediately following adjournment of the House on the afternoon of May 2. It was further VOTED *not* to hold a "Council Dinner," as has been customary in prior years.

DATE OF NEXT MEETING. It was VOTED that the Chairman and General Manager set the date for the next meeting.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

WANTED—Locum Tenens for the month of September 1962, Urology or General Practice

PLACEMENT OPPORTUNITIES

FOR SALE—Internal Medicine practice in New London area

WANTED—Young woman to take over general practice in Fairfield County Established practice of 33 years.

ANYONE INTERESTED IN THE ABOVE, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

Membership Report Of The Secretary

FAIRFIELD COUNTY

Membership—January 1, 1961			877
New Members		40	
Less:			
Deaths	10		
Resignations, transfers	8		
Non-payment dues, etc.	5	23	
Net Gain	17		
Membership—December 31, 1961			894

HARTFORD COUNTY

Membership—January 1, 1961			1011
New Members		43	
Less:			
Deaths	10		
Resignations, transfers	13		
Non-payment dues, etc.	0	23	
Net Gain		20	
Membership—December 31, 1961			1031

LITCHFIELD COUNTY

Membership—January 1, 1961			129
New Members		6	
Less:			
Deaths	0		
Resignations, transfers	0		
Non-payment dues, etc.	0		
Net Gain		6	
Membership—December 31, 1961			135

MIDDLESEX COUNTY

Membership—January 1, 1961			124
New Members		9	
Less:			
Deaths	4		
Resignations, transfers	3		
Non-payment dues, etc.	0	7	
Net Gain		2	
Membership—December 31, 1961			126

NEW HAVEN COUNTY

Membership—January 1, 1961			909
New Members		51	
Less:			
Deaths	13		
Resignations, transfers	20		
Non-payment dues, etc.	4	37	
Net Gain		14	
Membership—December 31, 1961			923

NEW LONDON COUNTY

Membership—January 1, 1961			175
New Members		9	
Less:			
Deaths	1		
Resignations, transfers	3		

Non-payment dues, etc.	0	4	
	—	—	
Net Gain		5	
Membership—December 31, 1961			180

TOLLAND COUNTY

Membership—January 1, 1961			24
New Members		1	
Less:			
Deaths	2		
Resignations, transfers	0		
Non-payment dues, etc.	0	2	
	—	—	
Net Loss		1	
Membership—December 31, 1961			23

WINDHAM COUNTY

Membership—January 1, 1961			66
New Members		2	
Less:			
Deaths	1		
Resignations, transfers	0		
Non-payment dues, etc.	1	2	
	—	—	
Net Gain		0	
Membership—December 31, 1961			66

Associate Members	11	
New Members	0	
Less Deaths	0	
	—	
Associate Members	11	December 31, 1961

Total Society Membership—January 1, 1961			3315
New Members			161
			———
Total Membership—December 31, 1961			3476
Less:			
Deaths	41		
Resignations, transfers	47		
Non-payment dues, etc.	10		98
	—		———
Total Society Membership—December 31, 1961			3378
Net Gain For Year		63	

TOTALS

Fairfield	894
Hartford	1031
Litchfield	135
Middlesex	126
New Haven	923
New London	180
Tolland	23
Windham	66
	—
	3378
Associate Members	11
	—
	3389

New Members

HARTFORD COUNTY

Bert B. Berlin, Hartford
Julius C. Early, Jr., Hartford
Muceddit T. Ergin, Hartford
Peter H. R. Hawkes, New Britain
Margaret O. Jones, Hartford
Ronald P. Kaufman, West Hartford
Paul G. Kuehn, Hartford
Vincent P. Ringrose, Jr., New Britain
Ralph D. Schmoll, Bloomfield
Philip A. Stent, Hartford
Rodney T. Wood, Hartford
James N. Yannios, Plainville

NEW HAVEN COUNTY

Louis Brahen, New Haven
Malcolm Brochin, New Haven
Matthew P. Campione, Waterbury
Nancy T. Deduk, Seymour
Valentine J. Dudek, Seymour
Alphonse DelPizzo, New Haven
Barry T. Held, New Haven
Langdon Hooper, Hamden
Marvin L. Hoovis, Naugatuck
Russell P. King, New Haven
Seymour L. Lustman, New Haven
Michael A. M. Peszke, New Haven
Marc D. Rosenberg, New Haven
Robert Turfboer, Woodbridge
Michael Wugmeister, New Haven
Carlos B. Zilveti, Branford

NEW LONDON COUNTY

Samuel P. Browning, Norwich
Vincenzo Cocilovo, Norwich
Frank G. Corazzelli, Jr., Norwich
Karl R. Friedmann, Old Lyme
Julien L. Joseph, Norwich
Dorothy B. Leib, New London
Gilbert M. P. Leib, New London
Mario Leicach, Norwich
Waclaw Olejnik, Norwich

1962 MEETINGS

May 18-19 – Connecticut Society American Board Obstetricians and Gynecologists Travel Club meeting in Montreal.

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 19—Hartford Chapter of the American Cancer Society. Time and place of meeting not decided yet.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Oct. 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

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Clinical Medicine

A System Of Diabetic Patient Instruction In A General Hospital

William G. Leeds, m.d.
Hartford

Good care of the diabetic patient must include thorough instruction of each patient and a member of his family in the fundamentals of diabetes and its day to day management.

About thirty years ago, a system of patient instruction was started at the Hartford Hospital modeled after a plan used at the Joslyn Clinic in the New England Deaconess Hospital, Boston, Massachusetts. This consisted in a series of five one-hour lectures held in a small lecture room at the hospital on each of five weekdays. This series is repeated each week throughout the year. These simple practical talks are geared for the layman and are taught by two full-time diabetic nursing supervisors together with assistance from a dietitian who gives one of the five sessions. The lectures are free to the general public and are usually attended by private and ward level patients drawn from the inpatient and outpatient groups, together with many who are in no way connected with the hospital except by geographic proximity.

The lecture given on each Monday consists in a general orientation with an outline of causes, symptoms, general treatment and hereditary nature of the disorder. Instruction in urine testing is demonstrated.

On Tuesday, the subject of insulin is undertaken. The method of measurement, administration, types and uses of the various insulins, sites of injection, syringe care and sterilization etc. are covered. On Wednesday, insulin reactions and diabetic coma are discussed in simple detail. Methods of prevention of reactions and measures to prevent coma or acidosis are suggested.

Foot care, the reasons for special hygienic measures relative to the extremities, types of foot wear, nail cutting and care of simple injuries to the feet and extremities comprise the Thursday session. The patients are instructed in what to do if signs of inflammation of the feet shoud occur.

The Friday lecture is given by a staff dietitian on the details of diet measurement. The need for exactness in following the same diet prescribed and not varying the quantity or quality of food from day to day is repeatedly emphasized. The types of diets to be used in situations of acute illness or gastrointestinal upsets are demonstrated.

This course of instruction is supplemented by inpatient instruction by the same three staff members. The two nurses assist in the inpatient diabetes education by bedside teaching of insulin administration, diet measurement, foot care, urine testing, etc. This provides instruction in a personal form for those who are bedridden and unable to get to the daily lectures. The diabetic nursing supervisor maintains a brief card file on each diabetic patient admitted to the hospital. This constitutes a thumbnail sketch of the patient's diabetic and medical history on each admission, the type of diet, amount and type of insulin being used and any complications of diabetes that may ensue over the years. This is frequently of great use to house officers and attending physicians alike in getting quickly some important information in brief form without the need for going through a less readily available detailed medical chart of previous admission.

The third area of instruction in which these nurses take part is the attendance at the weekly

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Dr. William G. Leeds is Clinical Assistant, Medicine, Hartford Hospital, Hartford, Connecticut. Co-Director, Diabetic, Outpatient Clinic, Hartford Hospital, Hartford, Connecticut.

diabetic outpatient department sessions run by a group of four physicians interested in the care and management of patients with diabetes mellitus.

The two nurses plus a regular attending podiatrist assist physicians in carrying out the outpatient diabetic care for ward level patients. The nurses at this time have the opportunity to re-inforce the recommendations of both the physician and the podiatrist and have the opportunity to review constantly the rules of good diabetic hygiene and care. If there are any questions or misunderstandings on the part of the patient, the nurses are able to clarify them at this time.

The average diabetic census, inpatient, including ward, semiprivate, private patients, is between 45 and 60, with extremes of from 15 to 90 patients at any one time. These numbers require two full-time nursing supervisors. In a smaller general hospital with a proportionate smaller diabetic census, a single full-time nurse or part time diabetic supervisor with otherwise general nursing duties could fill the role of diabetic instructor and nursing supervisor carrying out most of these principles of instruction.

The outpatient visits amount to 426 patient visits per year, and during the course of 12 months, the classes are attended by about 400 patients and their families. At the suggestion of the Council of the Connecticut Diabetes Association, with the cooperation of the Connecticut Hospital Association and the Committee on Hospitals of the Connecticut State Medical Society, it is proposed to have set up in each of the thirty-seven general hospitals in Connecticut, a system of diabetic patient instruction modeled after this plan with modifications as to scope and size, dictated by local needs. It is planned to hold a one-day seminar on patient instruction in diabetes at a centrally located city in this state to which each hospital could send a nurse, a dietitian, and perhaps an interested physician, so that coordination in planning and organization of the system could be better implemented.

NOTES ON TOXEMIA OF PREGNANCY

From The Committee On Toxemia Of Pregnancy

Franklin H. Epstein, m.d.
Clarence Davis, m.d.
New Haven

The Patient

A white, 16 year old, married, primagravida was admitted at 7½ months gestation because of rise in blood pressure, edema, and albuminuria.

Family History

Multiple pregnancy in the family; diabetes in a grandmother.

Prenatal History

This patient had regular routine prenatal examinations. Two days before admission her physician found ankle edema, elevation of blood pressure, and 4 plus albuminuria. With no improvement after 2 days bed rest at home, she was admitted for further study and treatment.

Course In Hospital

She weighed 132 lbs., an increase of 26 lbs. above her non-pregnant weight. Her blood pressure was 170/110 and there was 1 plus edema of the ankles. The size of uterus suggested twin pregnancy. The urine showed 4 plus albumin and her output was poor, 500 cc. output with 2,295 cc. intake on her first hospital day. Her uric acid was 5.3 mgm. per cent. Intravenous Pitocin failed to induce labor. She was placed on bed rest, with a low salt diet, sedation and magnesium sulfate for her high blood pressure, and was given Gantrisin for 3 days after a catheterized urine was obtained. Apresoline, Benadryl, and morphine sulfate were also used. Her blood pressure pre-operatively ranged from 130-150/90-100.

DR. FRANKLIN H. EPSTEIN is Associate Professor of Internal Medicine, Yale University School of Medicine.

DR. CLARENCE DAVIS is Associate Professor of Obstetrics and Gynecology, Yale University School of Medicine.

Her serum protein was 4.9 grams per cent. In an attempt to improve her urinary output, 4 units of serum albumin were given on her second hospital day. Following this the blood pressure became very high and she went into pulmonary edema, but responded to digitalis, aminophylline, and oxygen. On the third hospital day, her chest had cleared and urinary output was improving with intake of 1200 cc., output of 765 cc. On the fourth day, with intake of 1,335 cc., she had 2,000 cc. output.

Following digitalization and some increase in urinary output, a low cervical cesarean section was done under spinal and local anesthetic. Twin girls, 4 lbs. and 2 lbs. 14 oz. were delivered, the smaller of whom died. The larger one survives and is in good condition.

Following delivery the blood pressure declined and her edema cleared. The NPN, which had risen to 40 mg. per cent and the serum uric acid, which had reached 6.1 mg. per cent dropped to normal levels. She was discharged on the seventh postoperative day markedly improved.

Further Laboratory Data

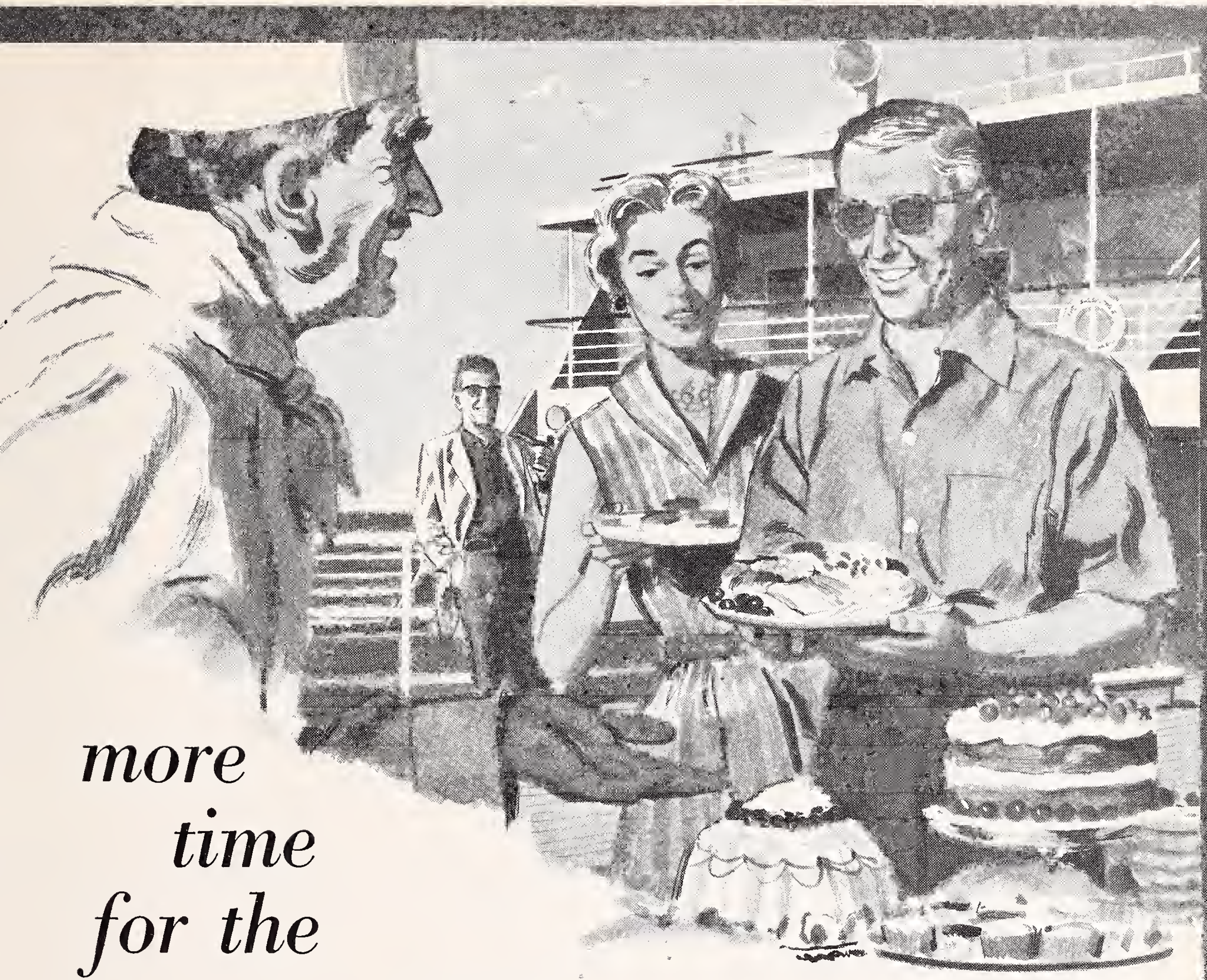
Urine: On admission, protein 4+ decreasing to 2+ on the first day postoperatively. On the fourth day after operation urinary protein increased to 4+ and remained at that level. Urine sediment showed 15-40 RBC/hpf. Urine culture on admission showed coliform bacilli, direct smear showing gram negative and gram positive bacilli.

On the day of operation, the hematocrit was 29. After a transfusion of 500 cc. of blood the hemoglobin rose to 11.4 grams.

Comment

This young woman was admitted to the hospital with signs of fulminating pre-eclampsia, which included 4+ proteinuria, hypertension, edema and oliguria. The cause of oliguria in such cases is not completely understood. Its mechanism is probably similar to that of oliguria in acute nephritis and presumably is related to acute and disproportionate reduction in glomerular filtration rate owing to endothelial swelling in the glomerular tufts. Signs of heart failure are not uncommonly elicited and the physician should be on the lookout for them. Orthopnea is frequent and both dypsnea and edema sometimes improve remarkedly after digitalization. Although hypoalbuminemia (secondary to prior losses of protein into the urine) is usually present and may contribute to edema, infusions of albumin generally do not assist greatly in establishing a diuresis (Orloff, J., Welt, L. G., and Stowe, L., J. Clin. Invest., 1950, *29,* 770). In the present case, overexpansion of the vascular volume with 400 cc. of 25 per cent albumin (the equivalent in protein of 2000 cc. of plasma) undoubtedly helped to precipitate pulmonary edema. If oliguria is present in a toxemic patient *with edema,* daily fluids should be limited to 1000 cc. plus urinary output. This should, as a rule, contain no sodium but should include at least 100 grams of carbohydrates to minimize ketosis.

Urinary infection is two to three times as common in patients with toxemia of pregnancy as in women with normal pregnancies. It has even been suggested that pyelitis may trigger some toxemic episodes. If the urine is infected in a case such as the one outlined above, proper treatment should consist of full doses of antibacterial drugs for at least ten days. The choice of drugs is best made by proper sensitivity studies. Follow-up examination during the post-partum period should include microscopical inspection of the sediment of a clean urine, to help detect asymptomatic recurrence of pyelonephritis.



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NEW BOOKS IN REVIEW

THE YEAR BOOK OF ORTHOPAEDICS AND TRAUMATIC SURGERY, 1960-61 Year Book Series, Edited by H. Herman Young, M.D., Published by Year Book Medical Publishers, Chicago, Illinois, 1961, 440 pp., $9.00.

Reviewed by DENIS S. O'CONNOR

Anyone who has been in the practice of medicine for even a few years must be familiar with the Year Book Series which have been published for many years. Since they constitute a review of the literature on the particular specialty covered they are invaluable for the busy doctor who cannot possibly keep abreast of the literature in any other way.

This volume, like its predecessors, covers the orthopaedic literature and what now constitutes such a large part of the orthopaedist's practice, traumatic surgery. In addition, one hundred pages are devoted to plastic surgery which makes one wonder if with the elimination of joint tuberculosis, osteomyelitis and poliomyelitis which only a few years ago constituted the bulk of orthopaedic surgery, this specialty as we know it is doomed to extinction?

CURRENT THERAPY 1961, Edited by Howard F. Conn, M.D. W. B. Saunders Co., Philadelphia, Pa., 1961, 740 pp.

Reviewed by LOUIS H. NAHUM

This is the Thirteenth Annual Edition and has achieved great popularity.

The first pleasant experience on opening the cover of this book was to find Normal Laboratory values of Clinical importance including functional tests of heart, liver, G.I. tracts, cerebrospinal fluid. In looking over the vast list of contributors it is evident that the methods of therapy have been presented by the most authoritative people in the field.

All parts of the medical and surgical field are covered including toxicology, antidotes, and industrial hygiene procedures. It is the kind of a book for quick reference that every physician needs on his desk and will use repeatedly in the course of his daily practice.

Of the 307 articles in this book, 283 or 82% are new and even the remaining 18% have in large part been extensively revised. The very few which have been carried over reflects the conviction of the Editor and the consultants that the therapy described is still the best as of this writing. The fact that so many have required revision, however, is eloquent testimony to the rapidly growing field of therapeutics, to the appearance of new and potent remedies and to the inescapable truth that the physician will quickly fall behind who relies on past knowledge and experience. Such an event must not be allowed to happen in a progressive medical setting and books like this one are reliable guides to medical progress.

On the other hand, obsolete procedures are rarely mentioned and methods or agents not fully tested are clearly so designated. This is necessary especially for the busy physician who is bombarded through detailing and blaring announcements on the introduction of new therapeutic agents and methods from medical and lay sources especially the press.

Every new therapeutic agent must stand the test of time. One experiences loss of effectiveness, the appearance of serious side effects and wrong inferences from statistical surveys. Someone is needed to clarify the specific indications for the administration of a new agent or method especially in a medical world which is constantly and rapidly changing. This book is devoted to presenting to the physician the distillation of diverse publication and to make specific numerous recommendations. In this way, the reader is kept abreast of the many changes that are taking place.

A SYNOPSIS OF CONTEMPORARY PSYCHIATRY, Second Edition, by George A. Ulett, M.D. and D. Wells Goodrich, M.D. The C. V. Mosby Co., St. Louis, Mo., 1960, 297 pp., $6.50.

Reviewed by LOUIS H. NAHUM

The senior author is professor of psychiatry at Washington University, St. Louis and the junior author is Chief of Biosocial Growth Center, National Institute of Mental Health, Bethesda, Maryland. They have produced a handbook of real merit which any student will value be he "too organic" in his orientation or "too psychoanalytic."

There are twenty-nine chapters covering everything from history of psychiatric thought, to history taking, the examination of a patient, both physical, neurological, psychological, and psychodynamic. There are chapters on disorders associated with brain disease, disorders of psychogenic origin and mental deficiencies. There is one chapter on Child Psychiatry and many chapters on treatment both with individuals, and groups. There is a chapter on convulsive therapy, coma and sleep therapies, psychosurgery, chemotherapy, hydrotherapy and forensic phychiatry and many more.

It is clear that it was written to fill the need for a quick introductory text of psychiatry for residents, medical students, medical and psychology interns and many others who work in a psychiatric clinic and hospital and all social workers. But this is not all, it is an excellent guide for the general practitioner who is having his attention increasingly directed to psychological problems and upon whom falls the responsibility to provide early care for those of his patients who develop mental illness.

The material is excellently organized and an alphabetical general index is provided at the end of the book. Reading over the text one can realize the tremendous scope that psychiatry has encompassed and the importance of such a synopsis to help the people who are engaged in treatment of psychiatric patients.

AROUND THE STATE

New Haven County

The New Haven County Medical Association held its 178th Annual Meeting at the Waverly Inn on March 22, 1962. In his opening remarks Clyde L. Deming, President Elect of the Connecticut State Medical Society, described American Medical Political Action Committee, the new national organization which provides physicians and ancillary groups the opportunity to partake in programs relating to public affairs. William R. Richards, General Manager of the State Society, subsequently told the association that Connecticut Medical Political Action Committee, state group affiliated with the national organization, has already been set up and is inviting doctors to join. More will be heard of this soon.

The General Manager and later Israel E. Blodinger, referred to the amended Preferred Contract proposed by C.M.S. This does not have the endorsement of our State Council. The proposal is shortly to be submitted to the various county associations for consideration and action. Ultimately the decision as to acceptance or rejection tests with the House of Delegates.

Franklin Foote, State Commissioner of Health, informed the members of a new facility for the mentally retarded to be built in the neighborhood of West Rock, New Haven. A site has been chosen on land donated to the State by the City of New Haven. Costs are to be met in part with funds realized in the sale of the former Woodruff Pavilion to the Hospital of St. Raphael.

Denis S. O'Connor made his last address as Managing Editor of Connecticut Medicine. His position will go out of existence in a reorganization taking effect in May. Thereafter an Editor is to oversee the literary life of the Journal, while the General Manager of the State Medical Society takes care of its business and financial affairs.

A highlight of the meeting was the presentation to Vernon L. Lippard, Dean of the Yale School of Medicine, of a check in excess of $7,500 by Thomas M. Feeney, President of the State Society. This donation was made by the American Medical Education and Research Foundation in furtherance of its program of aid to the nation's medical schools. The funds available to the Foundation derive, of course, from the contributions of individual physicians and other public-spirited citizens.

Two resolutions were introduced by Jachin B. Davis, both of which were passed by the Association. One embodied a proposal to establish community hospitals under the leadership of the county association, the Board of Governors to develop a plan of implementation. The second resolution was as follows:

Whereas: Members of the New Haven County Medical Association have received evidence that the Directors of one or more General Community Hospitals in New Haven County have recently adopted new policies affecting the appointment and/or reappointment of members of this Association to the Medical Staffs of said hospitals, and

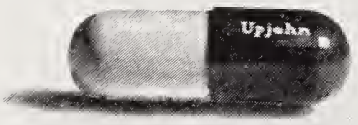
Whereas: These said policies call for the application of certain novel criteria of eligibility for staff membership which appear to constitute radical departures from traditional criteria in this regard, now therefore

Be It Resolved: That the New Haven County Medical Association reaffirm the historic policies of organized medicine with respect to the pertinent standards of eligibility for appointment and/or reappointment to the medical staffs of General Community Service Hospitals, as follows:

1. Good moral character and high ethical standards as determined by State Medical Examining and Licensing Boards, membership in organized medical associations and/or other authorized medical agencies.
2. Professional competence, as determined by these same agencies.
3. Willingness to participate as a staff member in hospital teaching, research, and community service programs.
4. Willingness to abide by the hospital rules which govern the professional conduct of staff members.

and be it further:

Resolved: That the New Haven County Medical Association affirm that all criteria of eligibility for appointment and/or reappointment to hospital staff membership which deviate significantly from these historic policies, or which might tend to cause the transfer of primary responsibility and loyalty of the physician from his patient to any other party or parties, or which might tend to abrogate the right of a patient to choose his own physician, are unethical because they might disrupt the patient-doctor



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Side Effects: Panmycin Phosphate is well tolerated clinically and has a very low order of toxicity comparable to that of the other tetracyclines. Side reactions are infrequent and consist principally of mild nausea and abdominal cramps.

Leukopenia has occurred occasionally in patients receiving novobiocin. Rarely, other blood dyscrasias including anemia, pancytopenia, agranulocytosis and thrombocytopenia have been reported. In a recent report it was observed that three times as many newborn infants receiving novobiocin developed jaundice as control infants. For this reason, administration of novobiocin to newborn and young infants is not recommended, unless indication is extremely urgent because of serious infections not susceptible to other antibacterial agents.

The development of jaundice has also been reported in older individuals receiving Albamycin. Serious liver damage has developed in a few patients, which was more likely related to the underlying disease than to therapy with novobiocin. Although reports such as the above are rare, discontinuance of novobiocin is indicated if jaundice develops. If continued therapy appears essential because of a serious infection due to microorganisms resistant to other antibacterial agents, liver function tests and blood studies should be performed frequently, and therapy with novobiocin stopped if necessary.

In a certain few patients treated with this agent, a yellow pigment has been found in the plasma. The nature of this pigment has not been defined. There is evidence that it may be a metabolic by-product of novobiocin, since it has been reported to be extractable from the plasma (pH 7 to 8.1) with chloroform while bilirubin is not. These properties have been employed to differentiate the yellow pigment due to the metabolic by-product of novobiocin and bilirubin. However, recent reports indicate that this method of differentiation may be unreliable.

Urticaria and maculopapular dermatitis have been reported in a significant percentage of patients treated with Albamycin. Upon discontinuance of the drug, these skin reactions rapidly disappeared.

Warning: Since Albamycin possesses a significant index of sensitization, appropriate precautions should be taken in administering the drug. If allergic reactions develop during treatment and are not readily controlled by antihistaminic agents, use of the product should be discontinued.

Total and differential blood cell counts should be made routinely during the administration of Albamycin. If new infections appear during therapy, appropriate measures should be taken; constant observation of the patient is essential. If a yellow pigment appears in the plasma, administration of the drug should be continued only in urgent cases, and the patient's condition closely followed by frequent liver function tests. In case of the development of liver dysfunction, therapy with this agent should be stopped.

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relationship and are therefore contrary to the public interest, and be it further

RESOLVED: That copies of these Resolves be transmitted to the next meeting of the House of Delegates of the Connecticut State Medical Society through its Council for affirmation by those bodies of the policies stated therein, and for appropriate action to sustain these policies.

The Board of Governors of the New Haven County Medical Association takes this opportunity to publicly thank the Radio Station W.A.V.Z. in New Haven, for air time made gratuitously to the Public Relations Committee and its Chairman, Dr. Luca E. Celentano, for special broadcasts of medical information. This was done as a public service to the people of our area and to the medical profession.

Naugatuck Valley Medical Society

The first two polio clinics of the 1962 season were held in March and April.

A special project was instituted on April 17th at a dinner meeting attended by the Naugatuck Valley doctors, lawyers, dentists and pharmacists.

The purpose of the meeting was to become better acquainted with the special problems and interests of each of the four groups at a joint session. Following this meeting, efforts are being made to define areas where mutual cooperation and community action can be jointly carried out by these four professions, and perhaps other professions as well. Such a joint identification of "professionals" could have considerable political-social-economic implications within the present day community structure.

New London County

Edward Gipstein, chief of the medical staff and head of the department of internal medicine, has been appointed director of medical education at Lawrence Memorial Hospital.

Dr. Gipstein will devote half of his time to planning, organizing and supervising the program of continuing medical education for members of the hospital's medical staff and will continue the private practice of medcine in his remaining time.

The 170th Annual Meeting of the New London County Medical Association was held on April 5th at the Lighthouse Inn in New London.

The following new officers were elected:
President, H. Peter Schwarz, Norwich
Vice-President, Edward Gipstein, New London
Secretary-Treasurer, Clifford E. Wilson, Norwich
Councilor, William J. Murray, Jr., New London
Alternate-Councilor, Nicholas T. Phillips, Norwich

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Mrs. Harry Knight, Middletown

Corresponding Secretary
Mrs. Edwin R. Connors, Hartford

Treasurer
Mrs. Fritz Meyer, Bridgeport

1962 National Auxiliary Convention
Chicago, Illinois
June 25-28

The Pick-Congress Hotel, Michigan Avenue, Chicago, Illinois will be the headquarters for the 39th Annual Convention of the Woman's Auxiliary to the American Medical Association. Mrs. Richard E. Westland and Mrs. Joseph A. Cari will be in charge of arrangements. Pre-convention activities will begin on Saturday, June 23rd. Scheduled meetings for this date are: Bylaws, Resolutions and Finance Committee meetings. Sunday, June 24, the Board of Directors will meet and the State reports will be given during the afternoon. Time for discussion and idea exchange by the State officers will be alloted. The convention days will each be divided into three sections:

(1) Early morning coffee sessions are planned to be "open" meetings to attract all doctor's wives whether they be Auxiliary members or the most vaguely interested potential members. Speakers of national fame and subjects important to each doctor and his wife will be headlined.

(2) Business meeting.

(3) The Auxiliary "at work."

Program, "Bridging" 1961-62 and 1962-63 will be highlighted and made practical by a follow up projecting 1962-63 plans which will aim at demonstrating continuity, the steady growth of activity and the easy transfer of leadership

Nominations for the 1963 Nominating committee will be made during the business meeting Monday morning. The election will take place Tuesday afternoon. Installation of new officers will take place on Wednesday morning. Thursday, June 28, will be devoted to the post-convention conference for all members, presentation of the new Chairman, and the AMA Round-Up by Dr. Ernest R. Howard. There will be no Friday meetings.

It is strongly urged that State Chairmen of the various committees try to attend this National meeting. Our official delegates would appreciate seeing more of us in attendance at National Conventions—Let's plan on a large attendance!

IN MEMORIAM 1961-62

Hartford County
Mrs. Stanley H. Osborn, W. Hartford, Nov. 1961

Middlesex County
Mrs. Philip Berwick, Moodus, Dec. 1961

New London County
Mrs. Thomas D. Masterson, Norwich, Nov. 1961

New Haven County
Mrs. George D. Burns, Derby, June 1961
Mrs. Luke Cerrone, New Haven, March 1962

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OBITUARIES

Irving Lyman Cabot, M.D.
1894 - 1962

Dr. Irving L. Cabot died on March 9, 1962, at the Methodist Hospital, Brooklyn, N. Y. of acute pancreatitis following operation for obstructive jaundice.

Dr. Cabot was born in Windsor, Vermont. He was educated in the local schools and graduated from Middlebury College with a Bachelor's degree in 1916. He then entered Harvard Medical School from which he received his M.D. degree in 1920. He went to Brooklyn for his internship at the Methodist Hospital, and continued his association with the hospital where in due course he became Chief of its Medical Service. He conducted a private practice in internal medicine in Brooklyn until 1955, when he moved permanently to Washington, Connecticut, where he continued the practice of medicine. At that time he became physician to the New Milford Hospital and was associtaed with Waterbury and Sharon Hospitals.

He was a member of the Litchfield County Medical Association, the Connecticut State Medical Society, the American Medical Association, the Pan American Medical Association, the New York Academy of Medicine, the Kings County Medical Society and the New York State Medical Society, of the Council on Clinical Cardiology of the American Heart Association, a Fellow of the American College of Physicians and Fellow Emeritus of the Brooklyn Society of Internal Medicine. He was also a member and past president of the Harvard Medical Society of New York. He belonged to the Harvard Club of Northern Connecticut and the University Club of New York City; and the Phi Beta Pi Medical Fraternity.

Dr. Cabot was a man of broad intersts outside of the medical profession. He was Treasurer of the Washington Club, President of the Washington Cemetery Association, and a Director of the Gunn Memorial Library in Washington. He had read and traveled widely and was interested in many subjects and all people. One of his great pleasures was his garden and another was his collection of antique pewter. He was a delightful companion and a charming host. His passing is a profound loss to all of us in all walks of life. He is survived by his widow, Ida L. Hagedorn Cabot.

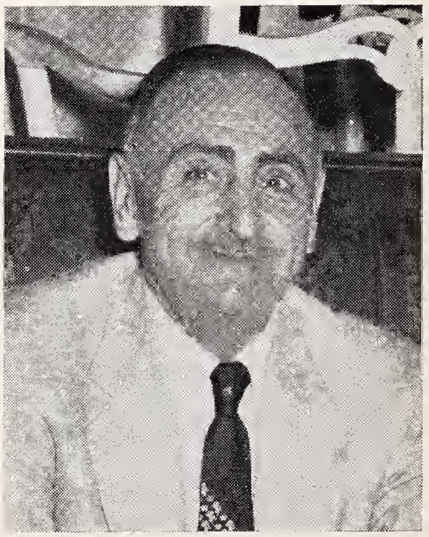
One of his patients wrote of him, "Not only did he minister to ills of the body but to the stresses of the spirit. Truly can it be said that he was a practicing Christian, reflecting in all he did the teachings and love of Christ."

John E. Sutton, m.d.

Frederick M. Ematrudo, M.D.
1897-1962

Dr. Frederick M. Ematrudo died February 22, 1962 in St. Raphael Hospital while undergoing cardiac surgery. He was sixty-five years old.

Dr. Ematrudo was born in New Haven, son of the late Vincent and Theresa Ematrudo. He was a graduate of Hillhouse High School and Jefferson College in Philadelphia and received his medical degree from the Eclectic Medical College of Cincinnati, Ohio.



He practiced for forty years, mostly in the Spring Glen area of Hamden where he had a combined home and office. At one time he was a member of the staff of St. Raphael Hospital and also was a police surgeon in Hamden.

Fred Ematrudo will be remembered best by his colleagues for his jovial and smiling disposition. His presence in a group was always signaled by gayety and laughter. Even the illness of his latter years which necessitated a curtailment in his medical practice failed to dim his optimism and he faced his formidable operative procedure with courage and confidence.

Dr. Ematrudo is survived by his wife, Margaret Hunter Ematrudo and two brothers, Louis and Michael Ematrudo of New Haven. To them we extend our deepest sympathy.

Bernard A. Rogowski, M.D.
William Cohen, M.D.

In Memoriam

Gottesfeld, Benjamin H. — Hartford; University of Colorado, 1939; practiced psychiatry in the Hartford area for 19 years; until his illness, Dr. Gottesfeld was psychiatrist-in-chief at Mt. Sinai Hospital and a member of the courtesy staff at St. Francis and Hartford hospitals; he previously had been attending psychiatrist at McCook Memorial Hospital, psychiatrist-in-chief at the Blue Hills Clinic, clinical director at the Institute of Livng, and attendng psychiatrist for the Veterans Administration facilities in Hartford; he was a former member of the teachng staff of Columbia Presbyterian Hospital, New York City; died March 23 at St. Francis Hospital at the age of 47.

Griswold, Crawford — Bridgeport; Yale School of Medicine, 1924; was chief of staff in obstetrics and gynecology at Bridgeport Hospital and a member of the medical staff of the Visiting Nurse association of Bridgeport; during World War I, Dr. Griswold served as an instructor in bacteriology at the Army Base Hospital, Augusta, Ga.; he was an instructor in the Yale School of Medicine from 1926-1929 and staff lecturer at the University of Bridgeport College of Nursing and the Bridgeport Hospital School of Nursing; a diplomate of the American Board of Obstetrics and Gynecology; member of the Connecticut and New England societies of Obstetrics and Gynecology, the University Club of Bridgeport, and the Sons of the American Revolution; he was the author of several medical publications relating to obstetrics; died at Bridgeport Hospital March 20 at the age of 65 years.

Marshall, Carter L. — New Haven; Howard Medical School, 1924; practiced medicine in New Haven for 31 years, specializing in skin diseases; took active part in civic affairs, serving on the Board of Health, the board of directors of the State Prison at Wethersfield and the Civil Rights Commission; he served on the Yale dermatological staff and was a member of the New England Dermatological Society; Dr. Marshall was a member of the East Rock Lodge 141, Elks of the World, and grand commissioner of health for that order; he was a 32nd degree Mason and member of the New Haven Consistory 7, Scottish Rite; Arabic Temple 40 (AEAONMSO), Connecticut State Shrine of Prince Hall Affiliation; died March 13 at the age of 63 in St. Thomas, V. I., where he had gone for convalescence.

Quatrano, Joseph C. — Bridgeport; University of Vermont, 1931; president of the medical staff of St. Vincent's hospital and at the time of his death, Dr. Quatrano was a member of the St. Vincent's intern committee; in 1958 he was appointed a Connecticut State police surgeon; he was a lieutenant commander in the Navy during World War II and a member of the Navy Reserve when he volunteered for duty in 1943; in addition to his local activities, he was a fellow of the International College of Surgeons, the American Board of Colon and Rectal Surgery and a member of the National Board of Medical Examiners, the American Board of Proctology, and the New England Proctology Society; died suddenly on March 17 at the age of 61.

Letter To The Editor

March 18, 1962

My dear Dr. Nahum:

My husband is being remembered in the March, Connecticut Medicine. I have just written to thank Dr. Curtis and Dr. McPherson for their thoughtful words and I must write you too.

To thank you for your article "The Doctor And The Problem of Human Survival" and the review on Dr. Osler. In an intangible way, such an expression of ideas by another physician would have given my husband far greater joy than any praise of himself.

I wish I knew you and could see my deep pleasure in turning the pages of the magazine from precious memory, to noble vision.

Gratefully,
Anne H. P. Swett
Farmington, Conn.

My mother wrote you this letter yesterday and died last night in her sleep. I thought you would like to see it anyway.

Norris P. Swett
Hartford, Conn.

AMA To Publish Handbook Of Medical Terminology

The American Medical Association will publish in June the first edition of a paperback, pocket-size guide to the preferred medical terms of all important diseases.

The handbook represents the first step in developing a system of correct medical terminology so that physicians from all parts of the world can understand each other, Dr. Burgess L. Gordon, AMA's director of nomenclature, said.

It will provide a definition of each disease indicating the known or possible causes and the most characteristic disturbances and findings, and through frequent revision will serve as a focal point of expanding medical knowledge, he said.

It will be kept as nearly up to date as possible. Revised editions are anticipated every 12 or 18 months.

No similar medical publication of handbook size is available for medical students, hospital staff, practicing physicians or medcal record librarians.

Entitled "Current Medical Terminology," the handbook will improve communication and understanding within the profession by promoting the use of correct terminology. It also should be invaluable in the coding and filing of medical information which is essential to further research and advances in medicine.

The rapid pace of medical developments in the post-World War II years placed a heavy burden on old methods of compiling and disseminating up-to-date terminology, Dr. Gordon said.

New or modified concepts emerged "even before the printer's type turned from hot to cold," he said.

Standard Nomenclature of Diseases and Operations (SNDO), the official listing of diseases published every 10 years since 1928, became "excessively large and complicated," he said.

The 1961 SNDO carries 18,000 names in a hardcover book of 964 pages. The same condition is sometimes referred to under several different names, causing confusion.

This situation led to a decision in April, 1960, for the AMA to publish a handbook of all important diseases and conditions listed in SNDO, the International Classification of Diseases, medical dictionaries, and standard books of medicine and the specialties to standardize terminology and facilitate the professional and administrative pursuits of modern medicine.

The first issue of "Current Medical Terminology," eliminating duplication and outdated terms, will contain less than 500 pages and sell for $2, the cost of publication.

Special Notices

Postgraduate Medical Educational Program Waterbury Hospital

Staff Room

May 4—*Medical Grand Rounds* (Pulmonary Disease), Albert S. Field, Jr., M.D., 10:00 A.M.

May 5—*Surgical Conference* (Case Presentation), Clarence D. Davis, M.D., 10:30 A.M.

May 11—*Medical Grand Rounds* (Endocrinology), Thomas T. Amatruda, Jr., M.D., 10:00 A.M.

May 18—*Medical Grand Rounds* (Liver Disease), Gerald Klatskin, M.D., 10:00 A.M.

May 19—*Pharmacology Lecture Series (IV)*, Charles N. Gillis, PH.D., 10:30 A.M.

May 22—*Pediatric Conference* (Rheumatic and Infectious Diseases), Harrison F. Wood, M.D., 11:00 A.M.

May 25—*Medical Grand Rounds* (Gastroenterology), Howard M. Spiro, M.D., 10:00 A.M.

June 1—*Medical Grand Rounds* (Neurology), Harold O. Conn, M.D., 10:00 A.M.

All of the conferences, lectures, and rounds listed are open to all physicians.

ROCKY MOUNTAIN CANCER CONFERENCE

The 16th Annual Rocky Mountain Cancer Conference will be held at Denver's completely air-conditioned Brown Palace West Hotel, July 13-14, and will feature panel discussions on "Neoplasms Complicating Pregnancy" and "Carcinoma of the Colon."

The President of the American Cancer Society and the President-elect of the American Medical Association will participate in the two-day program.

Application has been made for A.A.G.P. accreditation for the Conference.

Further information may be obtained by writing Rocky Mountain Cancer Conference, 1809 East 18th Avenue, Denver 18, Colorado.

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Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 JUNE, 1962 NUMBER 6

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REFERENCES: (1) Roseman, E.: Neurology **11***:912, 1961. (2) Bray, P. F.: Pediatrics* **23***:151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: M. Clin. North America* **42***:317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190. (6) Ibid.: Postgrad. Med.* **20***:584, 1956. (7) Merritt, H. H.: Brit. M. J.* **1***:666, 1958. (8) Carter, C. H.: Arch. Neurol. & Psychiat.* **79***:136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.*

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Connecticut Medicine

JUNE
1962

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VOLUME 26, NO. 6

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Residential Treatment Of Young Schizophrenics

STEPHEN FLECK, M.D.
New Haven

RATIONAL treatment of a disorder whose etiology remains uncertain must be based on plausible concepts concerning the condition. Treatment of schizophrenic patients, therefore, varies as widely as do etiological concepts and tenets. Claims or hopes that schizophrenia is related to a specific chemical or metabolic disorder have led to "specific therapies" such as insulin, to mention only the one which had proved useful for a longer time than others.[3,26] Psychoanalytic formulations concerning the nature of schizophrenia have, by and large, led to psychotherapeutic pessimism dating back to Freud,[11] despite the valuable insights into the schizophrenic's behavior afforded by psychoanalytic theories and clinical experience. Only slowly in the last two decades has this pessimistic tide been stemmed.[1,6,12,14,24,28] It would seem, however, that any label "specific therapy" of schizophrenia is premature in view of the uncertain nature of the condition itself, an uncertainty which begins with questions of diagnosis.[5,16,22] Is it an entity, is it distinguishable in terms of a "natural course of disease," is there a reliable diagnostic indicator, are there diagnostic criteria which are generally accepted by psychiatrists? To all but the last of these questions the answer is negative. As for the last question, the affirmation is not unqualified, but there is agreement that the criteria for the diagnosis are psychological in nature, as Bleuler[4] stressed a half century ago. Diagnosis, therefore, depends to a considerable measure upon the interpersonal and social situation in which the critical behavior is manifested, elicited, observed and documented.[2,16,28] This holds true whether the data are obtained in a psychological test situation, during a clinical interview, in a ward setting, or in a nonclinical environment. While we are awaiting elucidation and understanding of the chemical and neurophysiological substrates of behavior, the hope and search for a specific therapeutic agent must remain haphazard, even if, by chance, an empiric agent should prove as effective as salycilates have been in the treatment of rheumatic disorders.

While every new agent or treatment method has demonstrated that "regressed", or "deteriorated", or generally withdrawn patients need not remain so[21] – at least for as long as therapeutic or curative optimism lasts—patients were usually allowed to retire again into their nonparticipant modes of behavior and fantasy life, as one agent after another proved unreliable in inducing "normal" behavior. However, only in this decade has interest in the hospital environment itself as a therapeutic instrument been rekindled by works of Caudill, Jones, T. P. Reese, Stanton and Schwartz, and others.[7,10,13,17,18,23,27] Combined more recently with tranquilizing agents this approach has proved successful and rewarding beyond any previous measures.

Conceptual fallacies may have hindered progress. The century-old search for a single specific and sufficient cause has been our heritage from the eminently successful fields of bacteriology and infectious diseases. Although the Koch model does

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Presented in part at the Conference on "Role and Function of Treatment Institutions for Emotionally Disturbed Children" on October 5, 1959, at the Emma Pendleton Bradley Hospital in Riverside, Rhode Island.

DR. STEPHEN FLECK is Associate Professor of Psychiatry and Public Health of the Department of Psychiatry and Psychiatrist-in-Chief of the Yale Psychiatric Institute, Yale University School of Medicine, New Haven, Connecticut.

not fit entirely there either, it has remained the clinical model and aim in medical research for all disease.

The modifiability of schizophrenic behavior at all stages has not only been observed repeatedly during the last century, but has contributed to our inability to define a "natural course of disease." Adolf Meyer addressed himself to this problem half a century ago as follows: "We are, I believe, justified in directing our attention to the factors which we see at work in the life history of so-called dementia praecox. We are justified in emphasizing the process of crowding-out of normal reactions, of a substitution of inferior reactions some of which determine a cleavage along distinctly psychological lines incompatible with reintegration."[20]

Besides Meyer, Freud and Bleuler pointed the way a half century ago, and Sullivan spoke of schizophrenia as "a way of life" in contrast to a condition one contracts,[28] but our mental hospitals have been better equipped and staffed to deal with diseases in the traditional sense rather than to deal with patients' ways and problems of living.[13,15] Furthermore the pioneer experiences of Federn, Fromm-Reichman, Sullivan, and others[9,12,24,28] in psychoanalytic treatment of schizophrenics have helped to focus attention not only on the patient's family as the environment in which he developed,[19] but also on the surroundings in which he is treated, leading to the recent sociopsychological investigations of patient-staff interaction in mental hospitals.[7,13,27] These studies have highlighted the significant impact staff behavior has on patient behavior and on the "course of the illness."

The schizophrenic patient's way of life, or his clinical behavior, can still be summarily described in Bleuler's terms of autism, affect disturbances, ambivalence, and thought disorder just as well as it can by other epithets, and these difficulties remain the most immediate and ever-present issues in the patient's hospital existence.[4] This is so whether one postulates a hereditary predisposition, a metabolic origin, or that schizophrenia is learned somehow in a "schizophrenogenic" setting. The latter view has the advantage that the problems the patient experiences in every-day living then also become the focus of therapy. It is easier to forego concern about details of the patient's hospital life and of staff behavior towards the patient, if one assumes that the primary lesion is one that will only be affected by nonpersonal agents — such as drugs or surgery—much as an appendectomized patient may recover in most instances whether or not he gets good nursing care so long as the operation was well performed.

It is probable that the search for a specific lesion —for a "nonpersonal" cause of schizophrenia—has been an added factor in giving rise to mental hospitals where emphasis on interpersonal processes is minimal and where most interactions with patients are left to the least trained and psychologically least sophisticated staff members.[7,15,27] While there are many other factors involved in bringing about this situation that is characteristic of most large government mental hospitals, this viewpoint which has dominated psychiatric thinking about psychosis for most of the past century has led away from the intense concern with the patient as a person that prevailed a hundred years ago when the average asylum superintendent knew and had personal contact with every patient. Currently, such intimate interest in the patient would be impossible by reason of numbers alone, but it has also been prevented by the insistence that mental hospitals resemble and be run as much like general hospitals as possible, with the superintendent serving as an "administrator" rather than as Psychiatrist-in-Chief.[18] During the past fifteen years, we have witnessed intense and successful efforts in reinstituting the greatest possible emphasis on interpersonal processes in the hospital, but often in structures unfortunately quite unsuited for running them as a combination of smaller, relatively independent units where the physician-in-charge is directly concerned and involved with the patients. In a small hospital like our own the return to a primary emphasis on the interpersonal processes in the institution is relatively easy, but some of the difficulties inherent in reorienting staff are probably similar in all mental hospitals and will be described and analyzed in future communications.[25] As most patients admitted to the Yale Psychiatric Institute are schizophrenic, our experiment has particular relevance to the treatment of schizophrenics and this description is presented for this reason.

Leaving the question of etiology aside, we consider schizophrenia to be a serious personality disturbance with developmental vicissitudes of long standing in the area of identity formation, sexual identity in particular, and further characterized by proneness to autistic withdrawal, by a deviant pattern of association linkage, an intense ambivalence in all interpersonal relationships, and affective reactions which deviate from the cultural pattern. Accepting this formulation for pragmatic reasons, we can deal with some therapeutic propositions.

Autism—the withdrawal should be prevented or counteracted by an environment of staff and patients who make the inclusion of each individual in some activity their first-order-task. This does not just mean total push therapy, but a good deal more sophistication and tact in one's every-day dealings with such patients. Simple exhortation will not do —usually the ambivalent patient has received an overdose of exhortation before he arrives at the hospital.

Ambivalence is involved in the withdrawal, and the difficulties we experience when attempting to deal with or counteract autism. It is often the major focus in psychotherapy, or has to be at some time in the course of treatment, and probably cannot be worked out or overcome by the patient, except through experiencing and understanding his ambivalence in an intimate relationship.

The thought disorder, too, is a problem mostly for individual and group psychotherapy, but corrective influences should be available to the patient from his more random contacts with all people in the hospital.

The affective disturbances probably require the least specific attention except when they take the form of suicidal depression in which case appropriate precautions and measures are in order. However, most suicidal attempts of schizophrenic patients are not of this depressive matrix but more often involve bizarrely-engendered destructive tendencies which shade into gross murderous rages, as the patient sees himself as an extention of another person rather than as separate and individual.

Such suicidal or self-mutilating tendencies can be minimized by interacting with the patient in a way that will enhance his shaky self-esteem and that will promote outward expression of anger, frustration and confusion rather than by cleansing the environment of all items he might use to injure himself.

Schizophrenics then need interpersonal experiences which counteract the above difficulties. This requires an environment of people who reach out to the patient, who are untiring as well as psychologically sophisticated in their efforts to engage him, and who make him feel accepted despite his peculiarities but not because of them. In this connection it is important to emphasize that uncritical acceptance of craziness, of immature demands, or so-called "permissiveness," is not helpful to patients, and particularly not to young patients. A truly theraputic setting should provide for the patients' needs for special considerations and attentions but also help the patient to maintain and enlarge those ego functions which are adequate and the hospital must try not to facilitate further regression or ego disorganization.[8] While it is indeed difficult to make one's expectations of the patient known to him without his feeling rejected, imposed upon, misunderstood or dominated, this remains the therapeutic task: to help the patient accept environmental demands and expectations without behavioral and psychological disorganization.

Similarly, it is important to help the patient's family whose expectations of the hospital often are unrealistic and, in particular, not to permit the patient to enhance their problems and anxiety by failure to limit or control contacts between them. It is easier, however, to isolate patients and families than it is to help them towards more wholesome interaction.[10]

With this general background in mind I shall describe some of the developments at the Yale Psychiatric Institute, a university-supported private hospital, developments mainly in the direction of achieving a community that is alert and responsive to patients' behavior and needs, where psychotic patients of all types can be helped by any therapeutic agent that seems indicated, but with the central therapeutic emphasis on the psychosocial parameters of hospital life.

About ten years ago, incident to other administrative reorganizations in the Department of Psychiatry, including the Institute, an emphasis on individual psychotherapy was introduced, and much thought was given to facilitating and protecting the dyadic relationship between patients and therapists. At the same time there were also many formal efforts to achieve and maintain maximum intrainstitutional communication, through conferences and administrative and individual supervision, and this was stimulated greatly by Caudill's sociological study of the Institute.[7] However, communication remained fragmentary and not commensurate with the needs of the patient or of a therapist attempting to do psychotherapy with very disturbed psychotic individuals. Moreover, staff roles often seemed unclear, stifling individual initiative in specific situations, and producing routinization of problem-solving rather than flexible and individual consideration of patients' difficulties or demands. In general these propositions emerged based on Caudill's studies and our subsequent observations:

1. Intra-hospital communication had to be improved in the service of alertness to and understanding of patients' behavior.

2. The role and place of individual psychotherapy had to be redefined, especially with regard to the strict privacy and exclusiveness of the therapist-patient dyad. We began to believe that psychotherapy had to be truly individualized because some in-patients can be in analytic treatment with practicing psychiatrists who take no responsibility in the hospital treatment, while other patients benefit primarily from the therapeutic impact of the hospital environment. Thus there is a continuum on which some patients' individual treatment might be almost entirely private — as divorced from their hospital existence (which they still need) as that of an office patient might be,

whereas that of others, by virtue of their difficulties, is almost completely public and a concern to everybody in the hospital.

3. The staff had to be helped to become more secure in their professional roles and status to enable them to deal with situations spontaneously rather than according to the book—the book being our own rules, security measures, and, all too often, our convenience. The situation I refer to concerns the every-day activities of the patient—the twenty-three hours not spent with the psychotherapist and therefore these problems confront the doctor-on-duty, nurses, aides, activity workers, etc., more often than the specifically assigned psychotherapist.

Instead of trying to retrace the steps and measures that led to our present treatment program I shall quote extensively from a rather unique document drawn up about five years later by a special committee of patients and staff members for the purpose of exchanging information with other institutions concerning hospital life and treatment. This idea originated with our patients but was quite likely sired in part by a typical patient characteristic: ambivalence; there is a mixture of pride in this hospital and the innovations in which they participated, but there is also a feeling that "the neighbor's pasture looks greener." I should hasten to add that staff members share this kind of embivalence, at least at times. However, I believe the account will convey a picture of our current hospital scene and especially of our total community meetings which I could not match with a descriptive effort of my own.

The Committee Report

INTRODUCTION

The Yale Psychiatric Institute is a private 44 bed intensive treatment, psychodynamically oriented hospital, which utilizes a variety of therapeutic methods. It is a teaching hospital employing third-year residents of the Yale Department of Psychiatry, supervised by senior psychiatrists, and is located within a large Medical Center. It is divided into a locked and unlocked floor, each with both men and women patients, and includes a seclusion area used by patients when they become acutely disturbed. Most patients are from 18-25 years old. While the length of treatment varies greatly, hospitalizations of over a year are quite common, and some may continue for several years.

TREATMENT

The treatment program may be divided into two parts: (a) intensive psychotherapy; and (b) the Therapeutic Communlty.*

A. Each patient participates in individual psychotherapy for 3-5 hours per week, and in Group Therapy for an additional 2 hours.

B. The Therapeutic Community, as practiced at Yale, involves:

1. The concept of patients and staff forming a community united in the common goal of helping all patients to overcome their emotional problems.
2. The open discussion of any problems which affect the community as a whole. (See Patient-Staff Meeting below).
3. The concept that patients have a responsibility to each other and are largely responsible for the atmosphere that will pervail on the wards.
4. The encouraging of patient participation in the running of the hospital, including the acceptance of many patient-oriented ideas, a Patient-Staff Advisory Committee which makes recommendations to the staff, Patient-Government, an Activities Committee to plan the week's recreational activities, and a Refreshment Committee which buys and prepares special refreshments. (All committees and meetings are discussed below).
5. A tendency toward greater openness on the staff's part in explaining reasons for decisions and how they come about, including frank admissions that staff members often disagree, and that the concept of a single, one-minded staff is inaccurate.
6. An attempt to remove from the staff as much as possible the necessity of "policing," leaving them free to concentrate on constructive help, with patients exerting a measure of social control to prevent destructive behavior.
7. A general awareness that all relations and situations that exist within the community affect its members, so that efforts are made to maximize the beneficial aspects of *all* parts of hospital life.

C. In addition, tranquilizing drugs are sometimes used, particularly early in treatment. At present, about 25 per cent of the patients receive tranquilizers, and about 40 per cent are on night sedation. Shock therapy has been used with only one patient in the last two and one-half years.

D. A program of activities, athletics, OT, education and work is available according to the needs of the individual patient.

Patient-Staff Meetings

One of the most important developments in this hospital is the Patient-Staff Meetings, begun in September, 1956. It meets for one hour three times a week and is attended by the entire patient and staff population—patients, senior and resident doctors, nurses, social workers, psychologists, student nurses, aides, OT and music therapists. Anyone at the meeting may bring up whatever he wishes, making for wide range of topics discussed. Some examples of subjects which come up are:

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* The term is used colloquially by the patients with apologies to Dr. Maxwell Jones.[7]

A. Open and realistic discussion of a patient's acting out, how it affects others (both patients and staff), an attempt to understand it, and recommendations for dealing with it.

B. Attitudes of patients and staff toward each other.

C. Security regulations and rules, e.g., use of matches on the locked ward, late hours.

D. Attitudes toward authority, with specific cases.

E. Feelings concerning the annual change of residents.

The guiding principle of these meetings is that each individual's behavior affects and is affected by every other member of the hospital community, so that all bear the responsibility of voicing their opinions, and the attitude that to discuss an individual specifically would be a sign of lack of friendship or betrayal of confidence is discouraged. The level of frankness at the meetings is illustrated by the recent discussion by patients and staff, in his presence, of whether the Medical Director's chairing the meetings might be an inhibiting factor. Differences of opinion among staff members are frequently expressed.

Two of the week's meetings take a slightly different form, following the format of the regular staff meeting but with patients present and participating. This is a recent innovation whose value is still being assessed. Formerly, the night doctor's report was never available to the hospital as a whole, being exclusively reported in closed staff meetings. However, in two of the current three meetings weekly, the meeting is now bgun with the report by the night doctor of all calls and activities which required his presence. It is our experience that everyone is thereby made more aware of what is happening in the hospital, and a forum is provided for full discussion of those events. Thus, formerly, the report was given at staff, and it developed upon the individual therapist to take up the mention with the individual patient. All other patients were, consequently, short-circuited out of the discussion. Yet, more often than not, they were involved, if only perforce by being fellow-residents on the ward. The opportunity for their helpful suggestions and thoughts was denied the staff, as well as the chance for fuller understanding on the patients' part of interpersonal processes in which they intimately participated. Furthermore, the need of a "grapevine," with its inevitable distortions, has decreased.

Some of the purposes of these meetings are:

A. To break down barriers between members of the community structure.

B. To allow for direct liaison between all members, including those members of the staff who are rarely seen on the wards.

C. To improve patients' understanding of staff members' thinking and reasons for arriving at decisions.

D. To combat patients' feelings of helplessness in a hospital and give them a chance to express themselves concerning issues which affect them.

E. To allow members of the community to hear directly the effect of their behavior on others.

F. To foster feelings of a united Community, rather than of antagonistic patient and staff camps.

While the exact results of the Patient-Staff Meetings are impossible to define, and many meetings have long periods of silence and leave the participants disappointed, the general helpfulness of the meetings is widely felt and the possibility of daily meetings is under consideration. (Since the introduction of more staff business into the meetings, the customary silences have completely disappeared and there is more open expression of feelings on all sides).

Patient Advisory Committee

Patient Advisory Committee is composed of seven patients elected for staggering terms of six weeks each; plus the secretary of Patient Government, the Chief Resident, two chief nurses, and the Group Worker, meeting for one hour each week. That the patients take this committee seriously is seen in the consistent election of the better integrated patients for these positions.

The committee was formed because it felt that patients living together had an understanding of one another which could be usefully shared with the staff. By so doing the patients also got the opportunity to learn first hand what goes into decision making and to share the responsibility accordingly.

This committee makes frequent recommendations on room and floor assignmenets and brings to the staff's attention potential trouble areas. In addition, patient members are requested to speak with other patients who are present problem behaviors, where the peer contact is felt to be more beneficial.

When the occasion arises, the committee is called into an emergency meeting to deal with sudden ward disturbances which necessitate immediate action.

Although minutes of the meetings are distributed to staff and patients, many members feel that their recommendations are not given sufficient consideration.

Patient Government

Patient Government is the meeting at which patients transact business and elect committees. It is open to all patients; also present are a doctor, group worker, a nurse in an advisory capacity. Chairman and secretary are elected for four weeks and conduct the meeting according to parliamentary rules. (This is the only meeting in which votes are taken). The business, rather than therapeutic, nature of the meeting is reflected in the chairman's power to eject unruly members, a power not exercised now for over a year. Typical topics include:

A. Deciding whether to spend several hundred dollars available for a new film projector or a pool table.

B. Changing rules—many anachronistic regulations were dropped at patient initiative, e.g., having to lock up phonographs at night.

C. Discussing ward nuisances, with practical results, e.g., the decision to alternate the noisy TV monthly, between men's and women's sides.

D. Receiving committee reports and maintenance items.

Patient Government has been in existence here for a long time, and patient decisions are usually reasonable and are generally accepted by the staff.

While the ideal of Patient Responsibility is far from having been reached, the following examples are becoming more common:

A. Patients give the staff information they have about potential destructive behavior, e.g., suicidal attempts, possession of matches, potential run-aways; and the staff advises the patients concerning patients needing closer attention. The stigma of "tattling" has largely been overcome.

B. Patients frequently intercede to prevent destructive behavior until a staff member can arrive, and keep an eye on patients who are not feeling well.

C. Disturbed patients are often dissuaded by their fellows from acting out, and escapees are often brought back by other patients. This contrasts with an entire ward's aiding three patients to escape only a couple of years ago.

D. Patient Advisory Committee holds emergency meetings to deal with ward problems, and assigns members to help patients overcome anti-social behavior.

E. Patients frequently take responsibility for each other when going outside the hospital, obviating the need for staff accompaniment.

In addition, frequent explanations of the need for locks, locked razors, and the prohibition of carrying matches, as protecting the few who might be hurt, tend to mitigate patients' resentment toward these measures.

As security measures were relaxed, some nurses feared that patients' safety might suffer, yet in retrospect the opposite seems the case. A more relaxed atmosphere prevails on the wards; the old battle of wits between patients and staff has largely been outdated; nurses do less bookkeeping and policing and have more time for constructive interaction with patients; relations and attitudes of patients toward nurses and the hospital have greatly improved.

Thus far the Committee report. Other aspects of hospital life also covered by the Committee describe in detail the various types of going-out plans, usually for patients who work or study, the adult education program of four hours a week in which every patient must participate for at least one hour and the work program. Patients do volunteer-work in an adjacent General Hospital and a few hold jobs.

Comments

Our impressions as to results of the program and specifically of the meetings are those of participants in contrast to a detailed analysis from several viewpoints based on recordings of the meetings which is being undertaken by Dr. Robert Rubenstein and Professor Harold Lasswell, the latter not a participant.[25]

1. The hospital is more democratic. Without changing the framework for the use of power, the employment of power or authoritarian practices by staff has been markedly reduced because each move or decision is subject to everybody's scrutiny. This facilitates amelioration of schizophrenic patients' suspiciousness, and may reduce the need to withdraw and avoid inter-personal situations. When arbitrary decisions are made we try to do so explicitly, as for instance an interdiction of smoking in bed. This can be discussed for the sake of free speech but it is stated clearly that the staff will not permit smoking in bed no matter how much desired by patients. However, democracy is difficult to maintain in the face of intense dependency needs, and many cues are sought by patients and staff to attribute decision-making to the leader. There is an "Escape from Freedom" tendency which allows participants in meetings to hear questions as if they were orders or to rationalize inaction and de-

pendency by claiming that the approach to the decision had been wrong or improper.

2. Distance maneuvers by anybody are more difficult and indeed very difficult for staff. For instance, new residents' demands for more skilled manpower to deal with a very agitated patient are recognized as their resistance to getting involved with the patient. Instead of setting an example for aides, especially student-aides, it is easier—and traditional—to leave written or oral orders with the head nurse assuming somebody will know how to carry them out and make the patient behave better.

3. Communication has improved. Shared secrets of pathological quality are not long maintained, unless the staff has serious blind spots, or conspires with patients in some other way in not facing a problem. Conspiracies in general are short-lived because instances of individual or group isolation are scrutinized promptly. Some issues or conflicts are forced into the open and become available in individual psychotherapy when resistance in therapy might have prevailed without the group meetings.

4. Patient-Staff distance is lessened, and hostile camps are more difficult to form, let alone maintain, as existing differences of opinions or attitudes among the individuals in both groups become quickly apparent.

5. Staff disagreements are more overt and thus the staff sets an example of a group with differing opinions which, however, can work together.

6. The differences between the locked and open wards and the apprehension of these two groups about each other have been ameliorated by

   a. freer movement between wards
   b. the value viewpoint has changed from punishment — reward or progress vs. setback parameters to the recognition that a sort of continuum between floors exists for every patient, reflecting a continuum between disease and health
   c. the greater number of meetings in itself has brought patients from both floors more into contact with each other

7. Open discussion has helped to achieve more realistic decisions where dependency vs. responsibility issues are concerned, or the related issue of developing hospitalism as against a "flight into health."

8. Lastly, we believe that the patient-staff meetings in particular have helped to some extent to obliterate vertical administrative divisions. Nurses talk to physicians and social workers to aides, etc. as the occasion arises or the situation demands without checking upward through their respective supervisors or department heads. The aim is really to deal with a patient or a group in a professional and psychologically sophisticated manner and this must be practiced by all staff and not only by nurses or doctors, or the members of any one discipline.

It should be stressed, however, that the obliteration of such vertical barriers is a goal rather than something completely achieved and is a problem which demands continuing attention and effort. In our setting, the aides are particularly prone to being left out of the stream of communication and decision-making because most of them work part-time.

There are also some serious concerns about possible disadvantages of the community meetings.

1. The large meetings entail a definite pressure toward conformity and hence possibly unhealthy submissiveness.
2. The impact on individual psychotherapy so far is not clear. It is difficult to distinguish between patients' needs and educational prerogatives, in that, from the standpoint of the residents' supervisor, individual psychotherapy is made more difficult by the "unorthodox" environment.
3. The size of the group makes it difficult to manage, and the advantages and disadvantages of separate meetings in smaller groups need exploration.
4. The meetings bring about a type of living-in-a-glass-house unknown in life outside the hospital, and thus they may introduce an unrealistic element into the very endeavor to render hospital life as nearly representative of life outside as possible, commensurate with treatment-needs as we understand them.
5. There are also instances when the glass house atmosphere enhances resistance to facing some issues in therapy.

On the whole, however, we believe that our program or, at least, our goals contain the elements essential to counteract schizophrenic behavior. Individual withdrawal has been made difficult if not impossible for any length of time. We endeavor constantly to preserve areas of adequate ego functioning and appropriate behavior while attempting to gratify only those dependency needs which have led to personality disorganization if frustrated in the hospital setting. This goal requires individual programming for each patient within the framework of group needs and group expectations. Violent and aggressive behavior has been reduced to an occasional problem, even in new patients, and this was the case even before the advent of tranquilizing drugs which are now used liberally. Electric shock treatment and insulin have been given to fewer than a handful of patients in over five years. Grossly bizarre behavior is not often seen, although there are a few patients whose verbal communication has remained typically schizophrenic over many years. On the other hand, of the 85 schizophrenic patients discharged during a recent five year period (1955-1959) 57 were improved and have maintained a better pattern of living except for two who had to be rehospitalized.

Summary

Conceptualization of schizophrenia determines treatment methods and research as is the case with other conditions of uncertain cause. The staff at the Yale Psychiatric Institute operates in a psychosocially and psychotherapeutically oriented conceptual framework. The impact of the entire hospital environment is considered essential to the patients' welfare and treatment. Patients are given the greatest possible degree of responsibility for their own activities and for the institutional community, and hospital life is designed to counteract the cardinal schizophrenic symptoms. The details of this program are presented in excerpts from a document written by the patients describing the hospital and its operation. The results and possible implications of the program are discussed. Two-thirds of 85 schizophrenic patients discharged in a recent five-year period have adjusted with some success.

REFERENCES

1. Auerbach, A., Ed.: *Schizophrenia.* New York, The Ronald Press Company, 1959.

2. Bateson, G., Jackson, D. D., Haley, J., and Weakland, J.: Toward a theory of schizophrenia. Behavioral Science, 1: 251, 1956.

3. Bellak, L.: *Dementia Praecox.* New York, Grune and Stratton, 1948.

4. Bleuler, E. *Lehrbuch der Psychiatrie.* Berlin, Verlag Von Julius Springer, 1948.

5. Bleuler, M.: Forschungen und begriffswandlungen in der schizophrenenlehre 1941-1950. Fortschritte der Neurologie und Psychiatrie, 19: 385, 1951.

6. Brody, E. B. and Redlich, F. C., Eds.: Psychotherapy with schizophrenics: a symposium. New York, International University Press, 1952.

7. Caudill, W.: *The Psychiatric Hospital as a Small Society.* Cambridge, Mass., Harvard University Press, 1958.

8. Erikson, E.: The problem of ego identity. Am. J. Psychoanal., 4: 56, 1956.

9. Federn, P.: *Ego Psychology and The Psychosis.* New York, Basic Books, 1952.

10. Fleck, S., Cornelison, A. R., Norton, N., and Lidz, T.: Interaction between hospital staff and families. Psychiatry, 20: No. 4, 1957.

11. Freud, S.: Abriss der psychoanalyse: Eine Probe Psychoanalytischer Arbeit. *Ges. Werke XVIII,* Chapter 7. London, Imago Publishing Co., Ltd., 1941.

12. Fromm-Reichman, F. Notes on development of treatment of schizophrenia by psychoanalytic therapy. Psychiatry, 11: 263, 1948.

13. Greenblatt, M., Ed.: *The Patient in the Mental Hospital.* Glencoe, Ill., Free Press, 1955.

14. Hill. L.: *Psychotherapeutic Intervention in Schizophrenia.* Chicago, The University of Chicago Press, 1957.

15. Holzberg, J.: The historical tradition of the state hospital as a force of resistance to the team. Am. J. Orthopsychiat., 30, 87-94, 1960.

16. Jackson, D. D., Ed.: Introduction, *The Etiology of Schizophrenia.* New York, Basic Books, 1960.

17. Jones, M.: *The Therapeutic Community.* New York, Basic Books, 1953.

18. Kahne, M. J.: Bureaucratic structure and impersonal experience in mental hospitals. Psychiatry, 22: 364-375, 1959.

19. Lidz, T. and Fleck, S.: Schizophrenia, human integration, and the role of the family: *Etiology of Schizophrenia.* Chapter 7. D. D. Jackson, Ed., New York, Basic Books, 1960.

20. Meyer, A.: The dynamic interpretation of dementia praecox. Am. J. Psychol., 21: 385, 1910.

21. Myerson, A.: Total push method schema for recording of certain important attitudes in chronic schizophrenia. Am. J. Psychiat., 96: 935-943, 1940.

22. Pollack, H. M., Malzberg, B., and Fuller, R. G.: *Hereditary and Environmental Factors in the Causation of Manic-Depressive Psychoses and Dementia Praecox.* Utica, New York, State Hospital Press, 1939.

23. Reese, T. P.: Personal communications.

24. Rosen, J. N.: *Direct Analysis.* New York, Grune and Stratton, 1953.

25. Rubenstein, C. R. and Lasswell, H.: Studies in progress.

26. Sakel, M.: Schizophrenia. Philosophical Library, New York, 1958.

27. Stanton, A. H. and Schwartz, M. S.: *The Mental Hospital.* New York, Basic Books, Rinehart, 1954.

28. Sullivan, H. S.: Conception of modern psychiatry: The First William Alanson White Memorial Lectures. Psychiatry, 3: 1-117, 1940.

Retained Cystic Duct Stump

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SURGICAL treatment of biliary tract disease was introduced and advocated by Bobbs[1] in 1869, and it is reasonable to assume that the first cases of retained cystic duct stump occurred shortly thereafter. It is only within the last ten to fifteen years, however, that this condition has been recognized as to its importance in causing symptoms, and in the actual number of cases that exist. Garlock and Hurwitt[2] as recently as 1950 pointed out that this subject had not been adequately emphasized in the surgical literature. Glenn and Johnson[3] in 1955 were able to collect 148 cases from the English literature and added 35 cases of their own. More attention has been paid to this disease entity in the past few years but as recently as November 1960, a review of abdominal surgery failed to mention this as a complication of cholecystectomy.[4]

Glenn[3] has pointed out that symptoms found after cholecystectomy are due to three main causes: (1) "a condition other than cholelithiasis that was not recognized or properly evaluated prior to cholecystectomy"; (2) to "an incomplete operation in which stones are left behind or a remnant of the gall bladder or cystic duct"; and (3) the appearance of new symptoms is suggestive of injury to the common duct. The term of "post cholecystectomy syndrome" is a poor one in that it suggests that the symptoms may be due to some adverse effect of loss of the gall bladder.

Symptoms in the case of retained cystic duct stump are those of biliary tract disease which continue or recur following cholecystectomy. There may or may not be a symptom free period after the initial operation. In some reported cases this free period has been as long as 27 years. Pain is perhaps more prominent and more often severe and colicy than in the average gall bladder patient, and jaundice occurs in a higher percentage of these patients—55 per cent in Glenn's series. The diagnosis is made primarily by having a high index of suspicion, and is confirmable in almost every case by intravenous cholangiography providing the

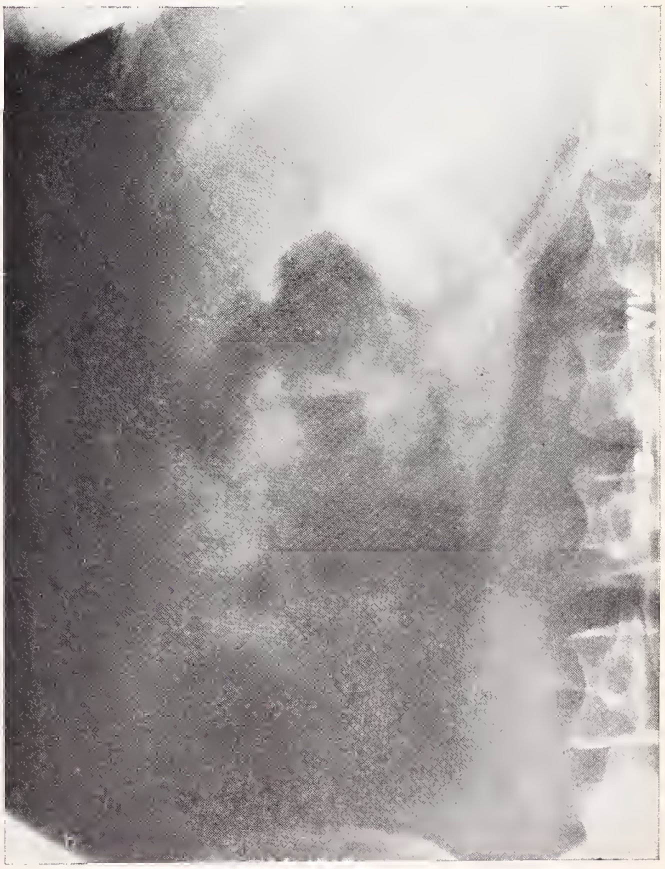

FIGURE I.

Intravenous cholangiogram showing two retained radioopaque calculi in non-filling cystic duct remnant. Sutures are from previous surgery.

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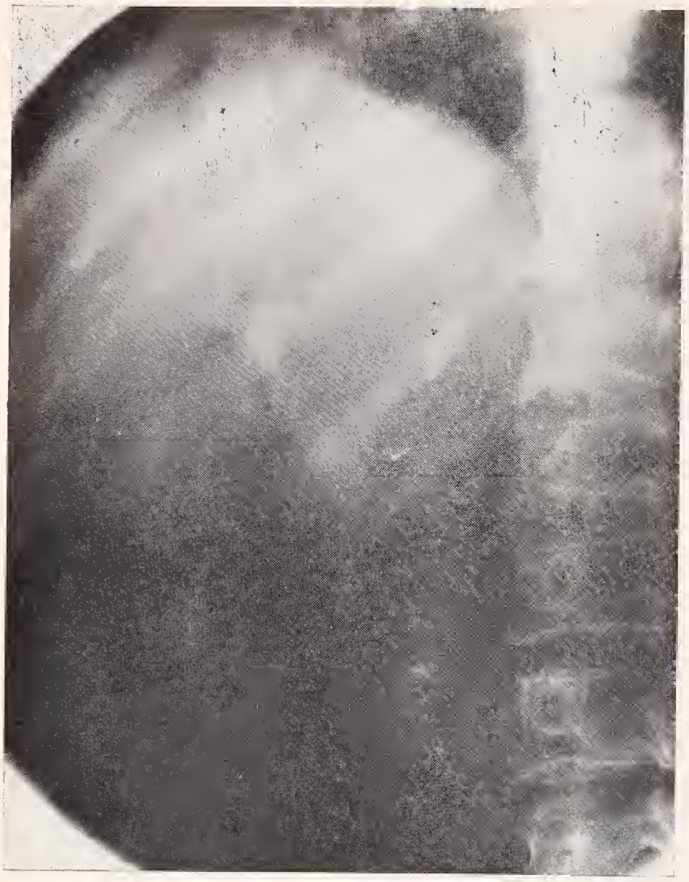

Figure II.

Large cystic duct remnant easily visualized by intravenous cholangiography.

patient is not jaundiced. In patients presenting with obstructive jaundice, surgery is mandatory in any event.

The present series consists of six patients with retained cystic duct stump operated upon during the four year period 1956 to 1960. During this same period 125 patients underwent cholecystectomy, a ratio of one patient with iatrogenic disease to 20.8 patients with naturally occurring disease. In this series there were five females and one male, paralleling the incidence of cholelithiasis which occurs four times as frequently in females. In four of the present cases symptoms continued unabated following cholecystectomy; in the remaining two cases the lag period was of 13 and 22 years. The duration of symptoms after they appeared or persisted ranged from one to 19 years illustrating that this diagnosis has been missed for a considerable period of time in some patients. The symptoms were those of right upper quadrant pain, often of colicy nature, and jaundice was present or had been present in four out of six patients. It is interesting that the original diagnosis was chronic cholecystitis and cholelithiasis in four cases. In these four patients the original operation was performed without incident according to the operator's note. Symptoms recurred; and X-ray work-up showed cystic duct stump. Operation in these four patients revealed cystic duct stumps varying from 2 to 5 cm. in greatest dimension. Figs. I, II, III. Three of the four remnants contained stones and in two of the four patients stones were also found in the common duct. Recovery from secondary operation was uneventful and these patients have remained well.

The other two patients present interesting variations of history and will be discussed individually.

1. HS, a 50 year old man underwent cholecystectomy in 1951 in an operation that required two hours and thirty minutes. Adhensions were described, and the gall bladder on pathologic examination was normal without infection or stones present. This patient continued to have abdominal distress of mild degree and was later noted to have intermittant ulcer type pain. Increasing symptoms required re-investigation in 1959 at which time intravenous cholangiogram showed cystic duct and gall bladder remnant and exploration revealed a 2 x 2 cm. gall bladder and cystic duct remnant containing one stone. Fig. IV. Pathologic examination of this remnant was chronic cholecystitis. In this patient an apparently normal gall bladder was removed; the ensuing years produced chronic

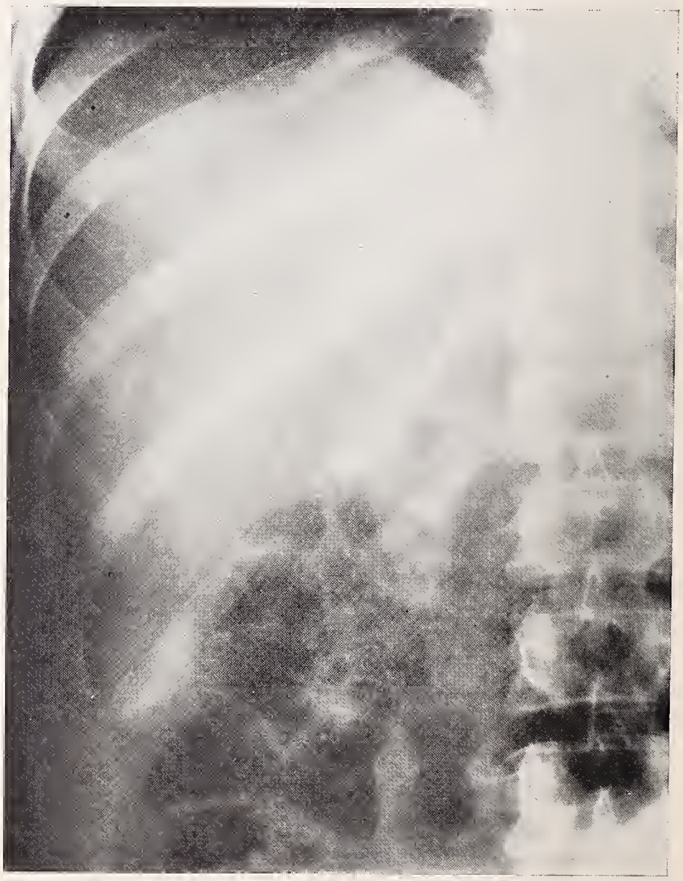

Figure III.

Large cystic duct remnant visualized by intravenous cholangiography.

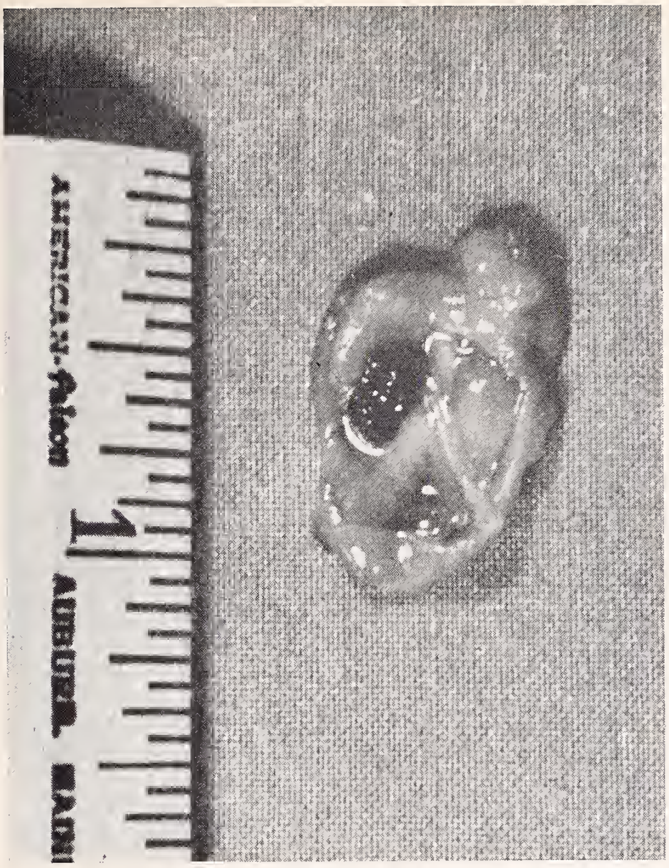

Figure IV.
Gall bladder and cystic duct remnant containing stone.

cholecystitis and cholelithiasis in an unremoved portion of ampulla and cystic duct.

2. JB was operated upon in 1951 for symptoms suggestive of gall bladder disease after an X-ray showed a poorly functioning gall bladder with no stones. The operation took seventy minutes. The pathologic diagnosis was cholesterolosis of the gall bladder. This patient continued to have epigastric pain and had several hospital admissions during the next four years with diagnosis of dorsal spine osteoarthritis and gastritis. In 1955 following cholangiographic deomonstration of a 3 cm. cystic duct remnant she underwent laparotomy with removal of the remnant and common duct exploration. The ampulla was found to be narrowed and duodenotomy and sphincterotomy were performed leaving a long-arm T-tube in place. This operation took three hours and forty-five minutes. The T-tube was left in place for four months and following its removal the patient experienced attacks of chills, fever, right upper quadrant pain and jaundice. In July 1956, one year following excision of her cystic duct remnant, this patient was operated upon and a strictured area in the common duct found, presumably at the point where the T-tube emerged. The distal common duct was normal and the opening to the duodenum patent. In a four hour operation this stricture was dissected free and the duct repaired. This patient had a stormy post-operative course requiring drainage of subhepatic and subphrenic purulent collections but has remained well from September 1956 to the present with no further symptoms. This patient underwent a progressive series of serious operative procedures in which the cystic duct remnant played an important part.

Pathologic examination has shown changes of acute or chronic inflammation in ductal tissue and portions of gall bladder wall. Although Womack and Crider[5] have ascribed pain in some of these patients to neuromata in the scar tissue, the presence of chronic and acute inflammation with stones would be sufficient in itself to produce the symptoms. Common duct stones are more common in these patients than in the average case of cholelithiasis, averaging 33 per cent.

Treatment of this condition is simple in theory; excision of the cystic duct remnant with ligation flush with the common duct. Most authorities feel that common duct exploration should be done in all cases. In practice these operations may be extremely difficult due to intense scarring from previous surgery. In the present series the average operating time was two hours and fifteen minutes ranging from fifty-five minutes to four hours, or over twice as long as the average for routine cholecystectomy. Post-operative complications following these operations cannot be statistically significant in the small series presented. The one case with multiple abscesses has been noted; one other case had a mild upper respiratory infection and the remaining had no complications. In Glenn's series of 35 cases there were three patients who died post-operatively with a mortality, therefore, of almost ten per cent, obviously much higher than that of primary cholecystectomy.

It is clear that failure to excise the entire gall bladder and cystic duct down to its junction with the common duct can lead to severe and life-threatening problems for the patient. Careful dissection of the duct system at the time of surgery is mandatory to clarify the exact anatomic relationships. The numerous anomalies of this region, especially of the right hepatic artery and the right hepatic duct make each cholecystectomy a relative unknown until the particular anatomy in that case has been clarified. Glenn has been outspoken in the past in condemning simultaneous clamping and ligature of the cystic artery and the cystic duct and has advocated removal of the gall bladder from the liver bed before transecting the cystic duct. This point is extremely well taken and while it is recognized that there are cases where incision of the thin peritoneal covering of the cystic common duct junction and careful dissection will delineate this area completely there are other cases where the anatomy cannot be clearly defined until the gall bladder is removed from its bed and the cystic duct traced in continuity to the common duct entrance.

One out of every twenty-two patients requiring surgery for biliary tract disease in the four year period described was operated upon for retained cystic duct stump. Cholecystectomy should not be undertaken without full knowledge of the incapacitating and potential fatal consequences of this condition and without the ability to perform the careful dissection required to prevent its occurrence.

Summary

During the four year period 1956-1960 six patients underwent surgery for symptoms caused by retained cystic duct stump. During this same period 125 patients underwent cholecystectomy, a ratio of one patient with iatrogenic disease to 20.8 patients with natural disease. Symptoms in the patients with retained cystic duct stump were indistinguishable from the symptoms of cholecystitis, with and without common duct obstruction. Four of the six patients had lithiasis of the stump, and three were jaundiced. All had right upper quandrant pain. The diagnosis in these cases were well confirmed by intravenous cholangiography. Brief case histories and representative cholangiograms are presented. The importance of careful dissection of the cystic and common ducts at the time of surgery for cholecystitis is again emphasized.

REFERENCES

1. Cutter, I. S.: John Stough Bobbs and lithotomy of the gall bladder. S.G.O., Int. Abst. Surg., 1928, 47: 409-411.

2. Garlock, J. H. and Hurwitt, E. S.: The cystic duct stump syndrome. Surgery, Vol. 29, No. 6: 833-841, June, 1951.

3. Glenn, F. and Johnson, Jr., G.: Cystic duct remnant, a sequela of incomplete cholecystectomy. S.G.O., September 1955, 331-345.

4. Welch, C. E.: Abdominal surgery. New England Journal of Medicine, Nov. 17 & 24, 1960: Vols. 263, No. 20; 263, No. 21: 1005-1012; 1065-1074.

5. Womach, N. A. and Crider, R. L.: The persistence of symptoms following cholecystectomy. Ann. Surg., 1947, 126: 31-55.

> *Take no thought for the morrow. Live neither in the past nor in the future but let each day's work absorb your entire energies and satisfy your widest ambition. That was a singular but very wise answer which Cromwell gave to Bellevire—"No one rises so high as he who knows not whither he is going," and there is much truth in it. The student who is worrying about his future, anxious over examinations, doubting his fitness for the profession is certain not to do so well as the man who cares for nothing but the matter in hand and who knows not whither he is going.*
>
> —William Osler, *Aphorism Of William Osler.*

Staphylococcal Food Poisoning

An Explosive Outbreak Among 852, Served In A High School Cafeteria

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THE following report deals with a Staphylococcus aureus, coagulase positive, phage type 7, outbreak of food poisoning affecting 234 teenage school children, teachers and school personnel in a group of approximately 852 persons served in a Berlin Connecticut High School cafeteria. Several aspects of this mass outbreak will be described. Particular emphasis will be given to the problem of mass emergency disaster care, both on the scene and in the hospital, as well as to the other less dramatic public health problems of epidemiology, sanitation and proper food handling.

History

At about 1:30 p.m. on the afternoon of 5/11/60, a 16 year old sophomore girl camplained of nausea, weakness and stomach cramps and was sent by her teacher to the school nurse in the health room. Here she was put to bed, vomited several times and was noted to be pale and sweaty. Within a period of 15 minutes 6 other students joined her in this health room with the same symptoms and it became apparent to the nurse that something unusual was occurring. She promptly called the school physician who felt that this in all likelihood represented the onset of a staphylococcal food poisoning outbreak. Inasmuch as a large, and at that time, unknown number of children ate the school lunch it was felt that the number affected would probably be considerable.

An emergency plan was immediately set into motion. Under the direction of the school superintendant and acting principal, all sick children were brought into the large gymnasium and were made to lie down on mats and on the floor. This precaution was taken to prevent possible injuries from children falling down in a faint and injuring themselves. The fact that no children or personnel were injured during the outbreak can probably be in large measure attributed to this precaution.

During the next hour the high school, as described in the lay press, was in a state of "mass organized confusion." Children who appeared quite well one moment in the next became violently ill with nausea and vomiting and prostration. They appeared in a state of collapse with pallor, cyanosis of the nail beds, extreme weakness and prostration to the point of barely being able to speak. Blood pressures were recorded as low as 60 mm. Hg. systolic, with bradycardia, indicating a vagotonic effect of the toxin. Despite ample reason for doing so, at no time did any of the children exhibit hysteria of psychic fainting. At the height of the outbreak, sick children were vomiting in the classrooms, corridors, health room and all available toilets. Shortly after the onset of the outbreak it became obvious that the major course of action was to transport all of the sick children to a local hospital, the New Britain General Hospital, some 4 miles away from the school. A call was sent out over the loud-speaker system of the school for all students and school personnel who were not sick and who had cars to line them up in the parking

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lot near the school exit. Other children and teachers as yet unaffected by the toxin acted as stretcher bearers and either carried or helped the sick into these cars and station wagons. At the same time, ambulances and state and local police and several parents and persons in the community, hearing the sirens and other commotion, all took part in offering their cars and station wagons for transportation purposes. In all 205 sick were removed to the hospital within a period of about 2 hours. A small number were taken to Meriden Hospital, also about 4 miles away. No medication of any type was administered at the school.

The height of the outbreak occurred as the children were being dismissed for the day. Those who were well enough at the time went home on the school buses or, if not usually transported, walked. Many of these became sick at home and a few who walked, lay down on the side of the road to weak to continue. In retrospect, it might have been wiser to have kept all the children in the school until it was certain that they were either going to become sick or had escaped the illness. Since, however, the entire student body numbered approximately 850, this would have required some additional supervisory care probably unavailable among the teachers who were becoming sick. At any rate it was felt wiser at the time to allow the healthy children to go home. Police cars were sent out to pick up any children who had possibly become sick along the roadside and a number of these were removed to the hospital.

The names of all those sent to the hospital were jotted down on sheets of paper and from these a master list was quickly assembled. Some 30 teachers and volunteers using neighbors phones were instructed to call the parents of each of the 850 school children to make certain that they had reached home safely and to advise hospitalization of the child only if he had become ill. This same information was broadcast several times over a radio and television "fan" system in cooperation with the state police. It was also noted at this time that only those who ate the school lunch, approximately 399 in number, were becoming sick. The others who brought their own lunches or ate only cafeteria sandwiches were unaffected.

Shortly after the outbreak, a report came in that other children in an elementary school had become involved. Inasmuch as the same menu was served in each of the five town schools this momentarily caused considerable alarm until the report was rechecked and found to be false. Fortunately, each of the schools prepares its own meals in individual cafeterias. Had the entire town student body of some 2300 children become involved in a food poisoning outbreak it is feared that any available resources for reasonable emergency care would have been overtaxed.

Hospital Care

Immediately at the time of the outbreak, the local hospital was alerted to expect an unknown number of acutely ill cases of food poisoning probably not exceeding some 350 in number. Fortunately, the hospital was prepared to handle just such an emergency since it had previously set up a disaster plan and had actually practiced this recently, going through the mechanics of a mock disaster. Even though this occurred on Wednesday, the usual "doctor's afternoon off", over 45 doctors promptly responded to the emergency call. Including the resident staff, some 60 doctors in all offered their services. In addition, the nurses on duty and other personnel who were about to go off duty at approximately 3 p.m. were in a position to stay on and continue working throughout the day. Seventy nurses, 39 aids, 6 orderlies and a large number of technicians and administrative staff were on hand. One parent per child was admitted to the major care area, assisting whenever possible.

The Emergency Room of the hospital was quickly flooded with sick patients and these were transferred to a 15 unit intensive care center on the same floor and to a large nurses' classroom, on the floor below. In the meantime, a fifth floor physiotherapy room was evacuated and prepared to accommodate the remainder of the patients. The hospital is equipped with three elevators and in reviewing the entire operation later at a critique meeting, it was found that a moderate bottle-neck developed at these points.

All patients were tagged with a wrist card on admission and these tags acted as emergency records, which proved to be a very efficient method of keeping track of the patient, medications and various pertinent clinical data.

Therapy

Therapy consisted of gastric lavage in most instances, saline and glucose infusions, the antiemetics Phenergan (promethazine) and Dramamine (dimenhydrinate) intramuscularly and vasopressors, intramuscularly or intravenously. Inasmuch as the diagnosis of staphylococcal food poisoning had been fairly well established by the explosive nature of the outbreak, it was possible to institute rational therapy without the unnecessary delay of extensive diagnostic procedures, such as blood tests, x-rays and bacteriological studies. As each patient entered the hospital, he was assigned to the care of a particular physician who then took it upon himself to follow the patient until all necessary care was administered. The major sign that was watched carefully was that of blood pressure. Many of the patients, as stated above, were in shock and several of these responded only slowly to aramine and intravenous fluid. At no time did any case appear to be in imminent danger of being lost. Vomiting was present in all cases and quite severe in several with instances of gastric hemorrhage, probably mucosal, occurring after strong retching. The value of gastric lavage in all cases might be questionable. However, since it was difficult to discriminate, most of the patients were subjected to this procedure. About 2 hours after the onset of the vomiting, most of the cases developed diarrhea and rather severe intestinal cramps. This condition lasted approximately 1 hr. although several of the children had loose stools for as long as 24 to 48 hrs. later.

Those cases less violently ill were being discharged as early as 2 to 3 hours after admission. Unfortunately, some of those discharged became weak at home and required readmission for intravenous and vasopressor therapy. Approximately 4 to 6 hours after admission, temperatures were noted to be elevated in many of the children, rising as high as 102°. The following morning all temperatures were normal. At 9 p.m. all patients were evaluated and some 38 children and adults were admitted for overnight observation. These were discharged the following day with the exception of 3 who were hospitalized another 24 hours. It was later determined by questionnaires that a number of cases were sick and remained at home. In general the younger children of the group and those who were less robust appeared to have been affected more seriously. This was also true of the older kitchen personnel who became very ill. The husky teenager apparently responded to treatment more promptly than these other two age groups.

Complications

As expected, once the acute phase had passed, the children were up and about without complications. A few continued to have abdominal cramps and tenderness for 3 or 4 days but these also entirely disappeared. A fairly large number had pruritis ani and furunculosis of the buttocks, and one female who was too weak to remove her girdle had severe diarrhea and developed pustules on her buttocks, back and both thighs, which cleared in a few days with local therapy. At least 2 children had some subconjunctival hemorrhages from the severe vomiting and one child had petechial hemorrhages all about the face and neck from the same cause. The cafeteria was closed for 3 days and the school itself was closed for the following day to allow for general clean-up purposes and to allow the children to regain their strength. On 5/13/60, the second day after the outbreak, practically all the children were back in school and one of the sick athletes was well enough to play baseball.

Epidemiology

There are two primary methods by which the cause of food poisoning can be determined, by bacteriological and in the case of chemical poisoning, toxicological analysis of the food itself, and by an extensive questionnaire analysis of the several foods either eaten or not eaten, by those who were stricken, and by those who were not stricken. As stated above the primary suspect in this type food poisoning was the staphylococcus. Of the other causes of food poisoning, botulism is usually not so sudden in its outbreak and frequently there are neurological signs accompanying the illness. Salmonella infections may come on fairly rapidly but usually do not occur until at least some 6 to 8 hours or later after the ingestion of contaminated food. Chemical poisoning, such as boric acid or arsenic or rat powder, on the other hand usually acts more rapidly than staphylococcal toxin. Animal testing, incidentally, is of little value in staphylococcal food poisoning since animals are usually unaffected by staphylococcal toxin.

By the time the first patient had become ill, the cafeteria had already been cleaned and all food disposed of except for one complete lunch which had been placed on one plate and put into the refrigerator for the school principal, detained at a conference out of town. This meal and all the stocked food in the cafeteria were promptly cultured that afternoon. At the same time, the nose and throat and hands of the various cafeteria employees were likewise cultured. In all 63 cultures were made of the food, cafeteria employees and vomitus and stools of the patients by the Connecticut State Health Department Laboratories. The results of these analyses revealed that *Staphylococcus aureus, phage type 7,* was the most abundant in the potato salad but had also been found on several of the other foods. This was attributed to the spread of the staphylococcus during the course of placing all of the food on one plate. The staphylococcus type found in most of the stools of the affected children was identical to that found in these foods, and was also identical to that found on nose, throat and hand cultures of the cafeteria workers. From this it became rather well substantiated that the food was in all likelihood contaminated by the cafeteria workers, incubated in the potato salad, and was the actual offending agent in the outbreak.

The results of the questionnaires, as outlined in Tables I, II, III and IV suggested rather conclusively that the offending agent was the potato salad. A total of 921 questionnaires were analyzed. Of these,

TABLE I.
LISTING BREAKDOWN OF 921 QUESTIONNAIRES.

	NUMBER EATING	NUMBER SICK	NUMBER NOT SICK
Cafeteria sandwiches or sandwiches from home	453	0	453
School lunch	399	234	165
Absent from school	0	0	69

69 persons were absent, and 453 ate either cafeteria sandwiches or brought their own lunches and were not ill. The remaining number, 399, ate one or more of the foods in the school lunch and of these persons 234 became ill and 165 were unaffected. Only 2 persons stated that they were unable to recall what they had eaten, which seems quite remarkable under the circumstances. The itemized menu of the school lunch consisted of sliced bologna, pimento loaf, potato salad consisting of boiled potatoes, hard boiled eggs, chopped onions, carrots, celery, mayonnaise and a ready made whip, sliced cheese, rolls, butter, milk, a graham chocolate pudding pie desert and chocolate cake with white butter frosting.

Each food consumed was subjected to statistical analysis, but for the purpose of this paper only the four foods, bologna, potato salad, pimento loaf, and vanilla pie, which were not immediately eliminated from suspicion will be discussed.

Epidemiological studies of such a food poisoning outbreak can become most complex and at times inconclusive. In this particular outbreak, however, by analyzing the information furnished by the questionnaire, it was felt that certain valid conclusions could be drawn.

Table I is a breakdown of the total number of questionnaires returned, and shows that only those eating the school lunch became ill, numbering 234 in all. Also 165 of those eating the school lunch did not become ill.

Table II correlates the four main foods in the school lunch with the number of persons stricken. Of the 234 persons stricken ill, all, or 100 per cent ate the salad. Furthermore, no one, or 0 per cent became ill who did not eat the salad. On the other hand, not all those stricken ate bologna, pimento loaf, or pie desert and in fact many were stricken who did not eat any of these 3 foods. This rather conclusively eliminates all these foods except the potato salad.

TABLE II.
SHOWING RELATIONSHIP OF THOSE 234 STRICKEN, TO PARTICULAR FOODS CONSUMED

	NUMBER EATING	NUMBER NOT EATING
Salad	234 (100%)	0 (0%)
Bologna	193 (82%)	41 (18%)
Pimento	167 (72%)	67 (28%)
Pie	195 (83%)	39 (17%)

TABLE III.
SHOWING RELATIONSHIP OF THOSE 165 NOT STRICKEN, TO PARTICULAR FOODS CONSUMED

	NUMBER EATING
Salad	132
Bologna	123
Pimento	92
Pie	125

Table III, in contrast with Table II, correlates the four main foods in the school lunch with the number of persons who were not stricken. Of 399 persons eating the lunch 165 persons did not become ill. Of the 165, there were 132 persons who ate the potato salad and yet were unaffected. From this it was felt that not all portions of the salad were infected, as will be described below.

Table IV lists the so-called attack rates of the certain foods consumed. There were 366 who ate the salad but of these only 234 or 63.9 per cent became ill. On the other hand 64.5 per cent of those eating pimento loaf became ill. It can be seen that attack rates can be misleading and not very helpful in epidemiological analysis. The method of eliminating suspect foods as outlined in Table II appears to be much more valid.

The entire process of food preparation was immediately carefully analyzed with the assistance of a State Department of Health epidemiologist, a sanitarian and the cafeteria supervisor. The general sanitary conditions of the cafeteria (5 years old) were found on this immediate inspection to be immaculate.

It was recorded that, on the day before the outbreak, the potatoes for the potato salad were peeled and boiled at about 2 p.m. They were cooled under running water, sliced by hand, and put into four large pans. Because they were still warm, they were left out in the kitchen and remained there overnight. On this same day also, the eggs were boiled and placed in the refrigerator with the shells intact. In addition, the celery, onions and peppers for the salad were chopped and also placed in the refrigerator.

TABLE IV.
SHOWING ATTACK RATES OF CERTAIN FOODS CONSUMED.

	NUMBER EATING	NUMBER SICK	ATTACK RATE
Salad	366	234	63.9%
Bologna	316	193	61 %
Pimento	259	167	64.5%
Pie	319	195	61 %

On the morning of the outbreak, at about 7:30 a.m., the eggs were peeled, chopped and together with the celery, onions and peppers were added to the four large pans of potatoes which had been standing overnight at room temperature as described above. Refrigerated mayonnaise and stockroom-stored ready-whip were then added to the above ingredients and mixed by hand in these pans which measured 4″ x 18″ x 30″ and this mixture was refrigerated at about 9 a.m. on the same morning. It was also noted by the workers that the temperature in the cafeteria this particular morning seemed unusually warm. At approximately 10:40 a.m. the four pans were brought out and placed (un-iced) in the serving area of the cafeteria. The children came in 3 shifts at 11:05 a.m., 11:30 a.m. and 12 o'clock and were served by the cafeteria workers from these pans.

On the basis of the above evidence, it was felt that the most likely chain of events was as follows. The potatoes were contaminated with staphylococci on the day previous to serving. The original focus of infection was probably in the nose of the potato peelers and the nasal bacteria were transmitted to the potatoes by handling during the process of peeling. Growth was probably slow in the unfrigerated potatoes during the night. Early the following morning, however, when the eggs and mayonnaise were added, incubation probably occurred more rapidly for a period of 1 to 1½ hr. at room temperature. The pans were then refrigerated, but the central portion of the salad probably did not refrigerate as promptly or as adequately as the more peripheral portions, and this is where the largest growth occurred. Prior to serving, the trays were again placed out at room temperature and further incubation continued, particularly in the central portions. It was the feeling of the investigators, although this could not be substantiated by actual bacteriological analysis or by questionnaire, that those who became violently ill ate a large dose of the toxin from the central portion of the salad and those who escaped the illness ate from some peripheral portions of the salad which were more properly refrigerated and contained less toxin.

This of course is somewhat speculative since the salad was removed and the pans cleared before the students became ill. Bacterial analysis of the portions in question thus could not be made. Which portion any particular child consumed could not be determined either, nor did the questionnaires show any significant difference in attack rates in the three dining shifts.

Experimental studies[1] however, have demonstrated the failure of the internal temperature of salads to drop rapidly and completely when stored in large containers such as used in this outbreak. A difference of six hours was shown to be necessary to lower the temperature of a 100 serving portion of chicken salad in a deep container as compared to the same amount distributed in four shallow bowls containing a 25 serving portion. Prompt refrigeration of hot foods resulted in faster internal cooling than did initial cooling to room temperature followed by refrigeration. In addition, other studies[2,3] have shown that the growth range for staphylococci in perishable foods is 44° F. to 114° F. and that the storage of such foods as salads in this range allows for the formation of toxin in amounts proportional to the length of time allowed for bacterial growth.

An outbreak[4] very similar to this one and affecting 600 high school girls was attributed to a ham instead of a potato salad. It was recorded that the ham after original cooking, was ground and allowed to stand as long as 3 days unrefrigerated and then mixed in a salad. In comparison, the potatoes in this outbreak were left unrefrigerated only overnight. A Staphylococcus aureus, coagulase positive, phage type three was cultured from the ham salad and from the nose and throat of several cafeteria workers.

Discussion

Although no new contribution to the problem of food poisoning is presented, several points of interest are well worth emphasizing in this report.

1. The danger of acute staphylococcal food poisoning exists in the most immaculate and well run establishments such as this high school cafeteria.
2. Staphylococcal food poisoning can be a most alarming illness and appears to be a more serious disease in the younger and older age groups.
3. Prompt, constant and proper refrigeration of food would probably have prevented this outbreak.
4. Since many persons are staphylococcal carriers, as in this cafeteria, particularly in the nose and throat and not just in open sores and cuts, the preparation and handling of food with the hands should be kept to a minimum. Certainly mixing salads by hand as done in this outbreak and almost universally throughout the country cannot be condoned.
5. Washing the hands thoroughly before entering a cafeteria, with some preparation such as hexachlorophene (Phisohex), as is now being done in all Berlin school cafeterias, is a simple and probably useful preventive measure.
6. Despite modern cafeteria facilities, the human factor in food preparation dictates that cleanliness and sanitation deserve constant vigilence.
7. One other phase of this outbreak as it pertained to the offending agent, the staphylococcus,

was that it might now, by being spread about in this sudden manner become a community problem. Fortunately, bacteriological studies in the hospital made after cleansing in the various areas where the patients were treated failed to show the presence of staphylococci except in the emergency room. The emergency room area is presumed subject to constant reinfection and is cleaned daily, routinely.

8. Each community hospital would do well, as did the New Britain General Hospital, to initiate and practice a Disaster Plan for medical, as well as for the more common surgical traumatic catastrophies.

9. In an emergency, the American public, and this particularly applied to our younger generation, is resourceful and can react in an intelligent and constructive manner. Great confidence and pride in the medical profession and its ancillary groups was evidenced by the various written and expressed sentiments of many grateful parents and school authorities.

Summary

1. An explosive outbreak of *Staphylococcus aureus*, coagulase positive, phage type 7, food poisoning occurring in a high school cafeteria, affecting 234 of 852 students, teachers and personnel is presented.

2. The symptoms of poisoning were sudden nausea, vomiting, collapse and shock with systolic blood pressure as low as in the 60s, followed by cramps and diarrhea.

3. A disaster plan set up for just such an emergency in our local community hospital, proved of unestimable value in preventing loss of life. Mass therapy was prescribed as outlined.

4. The offending organism and food involved, after careful epidemiological studies by bacteriological and questionnaire analysis appeared to be a staphylococcus growing in a potato salad.

5. The particular phage type 7 staphylococcus was found in the nose and throat of the cafeteria workers, the offending food, vomitus and diarrhea of the patients. Careful epidemiological studies were carried out in an attempt to trace the course of the staphylococcus from the cafeteria workers, through the food to the intestinal tract of the victims.

6. Refrigeration and proper food preparation are the primary measures in staphylococcal food poisoning prevention and were not practiced in this outbreak.

7. There is probably no fool proof measure for handling food which will guarantee prevention of this type of illness in the future and it is felt that similar although less dramatic outbreaks are occurring daily and will continue to occur from time to time as long as the staphylococcus lives in symbiosis with man.

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REFERENCES

1. Black, L. C. and Lewis, M. M.: Effect on bacterial growth of various methods of cooling cooked foods. J. Am. Dietet. A., 24: 399, 1938.

2. Lewis, M. M., Weiner, H. A., and Winter, A. R.: Bacterial growth in chicken salad. J. Am. Dietet. A., 29: 1094, 1953.

3. Angelotti, R.: Time-temperature effects on salmonellae and staphylococci in foods. American Journal of Public Health, 51: 77, January 1961.

4. Googins, J. A.: Staphylococcal food poisoning. National Office of Vital Statistics, Department of Health, Education and Welfare. Morbidity and Mortality Weekly Report, 7: 23, 1958.

"Meal Eating" Vs "Nibbling" Definition And Consequences

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Studies of intracellular enzymatic reactions are clarifying the pathways of metabolism of carbohydrate, fat and protein. As these chemical reactions become known, they have revealed the complexity of the transformations and the interrelationships in the body's handling of these three foodstuffs. It has been well established that the genetic background, the character of the food and hormonal influences are definite factors in regulating enzymatic activities, hence overall body metabolism.[1–4] In general, most experiments have been performed under the conditions that animals or their tissues were studied in a so-called "steady state." In such experiments, it has been tacitly assumed that as long as food entered the gastro-intestinal tract, either as frequent small feedings spread out over a 24 hour period or as spaced full meals, the animals would handle the ingested calories in a similar fashion. Evidence is now available suggesting that the rate of ingestion of the foodstuffs is in itself a significant factor in the regulation of body metabolism by its influence on specific enzymatic reactions.[5,6]

It was observed originally that rats fed by stomach tube (force fed) twice daily contained almost twice the amount of body lipid as did animals eating the same diet ad libitum, under the conditions of "pair gaining" or "pair feeding."[7–9] Further studies yielded results showing that while body weight gains of the rats fed in both ways were comparable, the force-fed animals deposited more fat but less protein and water. In addition, it was found that force feeding was associated with evidence of diminished thyroid function secondary to a decreased formation and/or release of the thyroid stimulating hormone of the pituitary,[10,11] and to altered intracellular enzymatic activity.[12] The results obtained could not be attributed to handling, sex of the animals, the presence or absence of the adrenals, the composition of the diet, the dilatation of the stomach that accompanies force feeding or to the administration of the food during the day or night. It should be realized that the laboratory rat i normally a "nibbler," i.e., when consuming his food ad libitum, he ingests frequent small feedings. By force feeding the animal twice daily, he is converted into a "meal eater," in the sense that he is made to ingest large spaced loads of food.

As a result of such studies, and utilizing data available in the literature, a concept was evolved which suggested that the rate of food ingestion plays an important role in the regulation of traffic over specific enzymatic pathways, and as a result, influences overall body metabolism.[5,6] It appears that lipogenesis, protein formation and some endocrine activities can be altered by the *manner* of eating. Meal eating, as contrasted to nibbling, appears to result in differences in the quantities of metabolites that are channeled over alternate and rate-limiting enzymatic pathways. With such changes, and with the known complexity of intermediary metabolic processes, it might be anticipated that overall body metabolism would be changed likewise. In view of the interrelationships

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of fat, protein and carbohydrate metabolism, it would not be unexpected to find that different eating habits would be accompanied by a difference in the manner in which the body handled its daily load of calories.

As a result of such reasoning, it appeared that by manipulating the conditions of food intake, a very simple tool was available for exploring the possible effects of eating habits on both basic intermediary metabolic reactions as well as on "metabolic" diseases. With this thought in mind, one metabolic disease to which man is prone—atherosclerosis—was studied. Both the induction and regression of experimental atherosclerosis was followed in the chicken, under the conditions of meal eating and nibbling.[13, 14] The chicken, like the laboratory rat, is a nibbler and consumes frequent small feedings over the course of a 24 hour day. By offering the birds food for an hour in the morning and an hour in the afternoon, it was found that they could be trained to become meal eaters. In the induction experiments, chickens were given a diet containing a small amount of cholesterol under the two different feeding regimens. After five weeks of eating in this fashion, the birds were sacrificed, their aortas and coronaries examined for atherosclerotic lesions and their sera for lipid constituents. During the five week period of dietary cholesterol ingestion, the meal eaters at one-third less food, hence were subject to the "atherogenicity" of one-third less cholesterol, and gained less weight than did the nibblers. Bloods were drawn on the morning of sacrifice, 18 hours after the meal eaters had last ingested food, as contrasted to the nibblers that had eaten all night. Analyses of the sera revealed that the meal eaters had double the level of serum cholesterol of the nibblers; examination of the aortas of the two groups of birds showed that meal eating was accompanied by both an increased incidence and increased severity of atherosclerotic lesions. Microscopic studies of the coronary arteries showed that the meal eaters had seven times the incidence of atherosclerotic plaques as the nibblers. In furthr experiments, on the influence of eating habits on the disappearance of established atherosclerosis, it was found that meal eating was associated with a slower rate of clearance of cholesterol from the serum and the atherosclerotic lesions from the coronary arteries.

The following table indicates the now known ways in which the rate of ingestion of the diet influences certain aspects of metabolism in the experimental animal.

TABLE I.

METABOLIC DEVIATIONS PRODUCED BY MEAL EATING

1. With respect to Carbohydrate and Fat Metabolism
    - (a) Increased tissue hexosemonophosphate oxidative shunt activity[1]
    - (b) Increased body fat with normal body weight ("non-obese obesity") [1, 2]
    - (c) Elevated serum cholesterol levels and enhanced atherogenesis[2, 3, 4]
2. With respect to Protein Metabolism
    - (a) Decreased body protein[1]
3. With respect to Endocrine Function
    - (a) Hypothyroidism secondary to decreased TSH formation or release[1]
    - (b) Decreased 17 ketosteroid excretion (secondary to decreased ACTH formation or release?)[1]
    - (c) Enhancement of potential diabetes[1]

[1] Found in the rat.

[2] Found in the chicken.

[3] Found in the monkey.

[4] Found in the dog.

How man reacts to changes in the rate of ingestion of the diet is unknown at present. At birth, man is normally a nibbler but custom, convenience, working conditions and habit soon convert him into a meal eater. It appears of utmost importance to ascertain whether man reacts physiologically, as does the experimental animal, to differences in the rate of food intake. Furthermore, the findings summarizd above pose a number of questions with respect to the epidemiology and therapy of human diseases. Thus, although there have been numerous world-wide surveys to evaluate possible relationships of atherosclerosis and dietary constituents, eating habits as a possible etiological factor have been neglected. Could meal eating be a connecting link in the relationship of obesity, diabetes and atherosclerosis, especially in patients who are made to adhere to meals as a prerequisite for control? Might not diabetics be more easily controlled if given frequent small feedings? Might not patients with chronic hepititis or chronic renal disease be better able to handle ingested foodstuffs if consumed as "nibbles" since already overtaxed enzyme systems would not be subject to further spaced loads of metabolites? Is the beneficial effect of the practice of having patients with acute hepatitis constantly eating candy or high carbohydrate foods actually attributable to the nibbling, not the carbohydrate? Would patients with protein deficiences benefit from frequent small feedings, since the meal eating animals is less able to store protein?

At present, in an effort to confirm (or deny) the effects of meal eating in the human, much clinical investigation must be performed. If the concept and its consequences do hold for man, he must be prepared to adjust himself to a new mode of eating. The psychological adjustments may be more painful than the changes in eating habits.

Since this paper was submitted for publication, additional effects of the periodicity of food intake on body metabolism have been reported. These include: (a) an increase in the "severity" of experimental alloxan diabetes in the rat, when the animals are force fed day by day the same quantity of food they had formerly consumed *ab libitum*;[15] (b) an increase in protein anabolism in man, the sheep, steer, pig and rat when the animals are fed at more frequent intervals;[16] (c) a lowering of the serum cholesterol levels in man, with no change in caloric and fat intake, by eating 5—6 times daily.[14, 17]

REFERENCES

1. Haldane, J. B. S.: The biochemistry of genetics. The Macmillan Co., New York, 1956.

2. Knox, W. E., Auerbach, V. H., and Lin, E. C. C.: Enzymatic and metabolic adaptations in animals. Physiol. Rev., 36: 164, 1956.

3. Kaunitz, H.: Non-energetic powers of nutrition. Perspectives in Biol. and Med., 2: 75, 1958.

4. Tepperman, J.: Etiologic factors in obesity and Leanness. Perspectives in Biol. and Med., 1: 293, 1958.

5. Cohn, C. and Joseph, D.: The role of the rate of ingestion of the diet on the regulation of intermediary metabolism ("meal eating" vs. "nibbling"). Metabolism, *9*: 492, 1960.

6. Cohn, C. and Joseph, D.: Effects on metabolism produced by the rate of ingestion of the diet—"meal eating" vs. "nibbling." Am. J. Clin. Nutrition, *8*: 682, 1960.

7. Cohn, C., Shrago, E., and Joseph, D.: Effect of food administration on weight gains and body composition of normal and adrenalectomized rats. Am. J. Physiol., 180: 503, 1955.

8. Cohn, C., Joseph, D., and Shrago, E.: Effect of diet on body composition. I. The production of increased body fat without overweight (non-obese obesity) by force feeding the normal rat. Metabolism, 6: 381, 1957.

9. Cohn, C. and Joseph, D.: Changes in body composition attendant on forced feeding. Am. J. Physiol., 196: 965, 1959.

10. Cohn, C., Joseph, D., Oliner, L., and Morton, J. V.: Hypothyroidism produced by the forced feeding of normal rats. Endocrinology, 62: 251, 1958.

11. Kalant, N., McIntyre, W. C., and Wilansky, D. L.: Thyroid function in experimental nephrotic syndrome. Endocrinology, 64: 333, 1959.

12. Cohn, C. and Joseph, D.: Effect of rate of ingestion of the diet on hexosemonophosphate shunt activity. Am. J. Physiol., 197: 1347, 1959.

13. Cohn, C., Pick, R., and Katz, L. N.: Effect of rate of ingestion of the diet ("meal eating" vs. "nibbling") on atherogenesis in chickens. Circulation, 20: 969, 1959.

14. Cohn, C., Pick, R., and Katz, L. N.: Effect of meal eating, compared to nibbling upon atherosclerosis in chickens. Circulation Research, *9*: 139, 1961.

15. Cohn, C. and Joseph, D.: Comparison of "meal eating" and "nibbling" on severity of alloxan diabetes. Proc. Soc. Exp. Biol, and Med. 105: 575, 1960.

16. Cohn, C. and Joseph, D.: Feeding frequency and protein metabolism. Fed. Proc. 21: 403, 1962.

17. Cohn, C.: Meal-eating, nibbling and body metabolism. J. Am. Dietetic Assoc. 38: 433, 1961.

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Theodore Lidz, New Haven
Leonard Maidman, Wilton
Denis S. O'Connor, New Haven
Gerald I. Pitegoff, Hartford
William H. Resnik, Stamford
Victor L. Szanton, Derby

EDITORIALS

Approach To The Introduction Of New Pharmaceutical Products To Physicians

The recent governmental attacks upon the pharmaceutical industry in regard to alleged extravagant advertising causes one to wonder if a more logical approach could not be worked out to insure the most beneficial result to the industry and the most educational to the medical profession.

What should be the first approach? Since medical journals carrying scientific articles are most apt to reach the physician's eye it would seem that the first notice of the new product should be given through this medium. Since this material would be broadly informative it would not need to be minutely specific and should include provisions for more detailed information by request.

Requested literature should, of course, carry all the information including the unfavorable side effects and more personal discussion, including trial material, should be presented by the manufacturer's personal representative, the detail man.

The detail man has a necessary and logical place in the presentations of new products to the physician. He is a direct link between the manufacturer and the clinician. Not only does the clinician get a chance to express his observations concerning the new material but his comments and questions based upon his knowledge and experience is often very helpful when carried back to the detail man's employer.

It is hoped that a plan can be worked out for the better utilization of all media for the flow of information on new drugs to the profession.

D. S. O'C.

Retained Cystic Duct Stump

Elsewhere in this issue of Connecticut Medicine is a paper on the retained cystic duct stump. The problem raised is important because it leads in some instances to the necessity for re-operation and therefore a thorough understanding of the genesis of this unfortunate sequela to cholecystectomy is necessary. It is doubtful whether most of the "cystic duct stumps" are actually only cystic ducts. During a study of 400 consecutive cholecystectomies, the duct system was visualized either during operation or after operation by cholangiography; it was shown that though the cystic duct was suture-ligated, not more than 5 mm. from its *apparent* junction with the common duct, the subsequent roentgen examination proved that 25 per cent had abnormal lengths of cystic duct intimately associated with the common duct. Some of these were even so bizarre as to cross either in front of or behind the common duct and join the common duct on the left side. In one instance, a cystic duct passed behind and then in front to make a complete circuit of the common duct before joining it on the right side. In some instances the cystic duct and the common duct are so intimately associated that the muscular coat of each is incomplete and the separation between the two is only mucosa and submucosa.

In the report from the New York Hospital, nearly two-thirds of the patients re-operated for "cystic duct stump" syndrome had associated pathology which could explain symptomatology. The associated pathology consisted of strictures, common duct stones, and "reformed gall bladders."

If the retained cystic duct syndrome were a true clinical entity, one would expect that re-operation for it would occur more frequently. Reviewing the roentgen examinations and the pathological specimens of papers relating to this topic, suggests very strongly that the syndrome is one of incomplete removal of the gall bladder itself. If a portion of the neck or the ampulla of the gall bladder beyond the valve of Heister is retained and there is enough inflammatory disease to produce a stricture in the cystic duct, the epithelium of the retained segment will continue to secrete mucus and will actually produce a reformation of a bulbous structure comparable to a gall bladder; however, if amputation is done through the valve of Heister, it is unlikely that symptomatology will return to the patient with a properly amputated cystic duct.

The concept of retained cystic duct stump has led some prominent surgeons to advocate the removal of the cystic duct, flush with the common duct. This can only lead to tragic hazards in a benign condition. It has been variously estimated that the future of patients with traumatic strictures of the common duct is about a 50 per cent five year survival rate. This then places a benign cholecystectomy in the realm of risk comparable to some forms of malignant disease. Over-enthusiastic efforts to remove the cystic duct flush with the common duct will only result in many more injuries to the common bile duct itself.

The lesson to be learned from the patients that are re-operated for this form of post-cholecystectomy syndrome is that adequate removal of the gall bladder in its entirety be done with a safe ligation of the cystic duct at a comfortable distance from the common bile luct to avoid injury to the latter structure.

Mark A. Hayes, M.D.

A Plan For Drug Testing

The recent hearings before Senator Kefauver's committee investigating the pharmaceutical industry among other things, highlighted some of the difficulties involved in the clinical evaluation of new drugs and estimation of their relative efficacies. As is known, some scepticism has been expressed concerning present practices. The American Medical Association, fearful of undue government interference, feels that the final determination of a drug's value should lie in the hands of the individual practitioner. Regardless, however, of the extent of the latter's practice and knowledge, he requires some guidance in his choice of treatment.

Although much preliminary testing is done in animals, all new drugs require clinical testing to qualify for general use. The facilities for such testing are not available to the manufacturers who must induce universities, other institutions or private practitoners to do this. The multiplicity of drugs introduced puts a great strain on these facilities. To obtain them the manufacturers provide funds and equipment lavishly and in return naturally want quick and favorable reports. The pressure is on the investigator to report as favorably and as soon as he can do in good conscience. The results provide the company with valuable information in obtaining release of the product by the Food and Drug Association but are often of little value to the practitioner who must decide whether or not to use the drugs when they are offered for general use.

The need for better clinical testing prior to release of drugs for general use is a proper responsibility of the manufacturer, but it can not be met properly by direct negotiation between the manufacturer and the investigator. It might be feasible to establish a board to which manufacturers could submit new drugs after adequate control studies in animals, and which could then make grants to qualified applicants, help with experimental design if necessary, and check experimental conduct and facilities as well as results. This would be supported by the manufacturers but investigators would work without knowing who the manufacturer was. The boards could be multiple, each dealing with a class of drugs or diseases, and like those of the U.S.P. comprised of outstanding scientists in the field and reputable clinicians as well as representatives of government and the industry. This would not preclude additional direct contracting between manufacturer and investigator, but this would more properly be restricted to more basic research.

I.S.E.

Pain Or Suffering

Patients differ in regard to the degree of suffering they experience with painful stimuli. An early attempt at an objective analysis of this problem was carried out by Emanuel Libman, a famous encyclopedic physician in the early part of this century. He believed the varying reactions to pain were constitutionally conditioned and attempted to separate individuals accordingly. He recognized three types, the hypersensitive, the normal and hyposensitive individuals according to the magnitude of their response to a painful stimulus which he produced by pressure on the stilohyoid process. The hypersensitive were those who suffered inordinately at any painful stimulus, while the hyposensitive were those who poorly responded to any degree of pain. These were the patients who were likely to have myocardial infarction with little pain or come to the doctor with a ruptured ulcer or gallbladder or ruptured appendix as the first presenting symptom. The method fell into disuse because it lacked quantification and there were too many exceptions to the classification of a subjective response.

In truth the pain experience is extremely complex and methods of measurement seemed almost impossible. The perception or sensation of pain cannot be the original sensation as initiated at the receptor sites and transmitted over classical pain pathways, for it must go through an indefinite amount of psychic processing. In the process there becomes superimposed a "reaction component" which determines the amount of suffering a given person will experience with his pain. Stated in another way a person feels a variable degree of pain and suffering depending upon psychic components. This is probably why patients with intractable pain from cancer were at one time subjected to prefrontal lobotomy to eliminate the reaction component.

This reaction component as measured by the degree of suffering is often observed in some patients postoperatively who though in real pain require little or no sedation because their anxiety of going through the surgery is allayed as soon as they are through it and find themselves still alive. It was dramatically brought home to us by Beecher[1] who made a comparative study of wound pain in soldiers and civilians. Two-thirds of wounded soldiers did not want medication for their pain, because they were so relieved and thankful for their escape alive from the battlefield. Four-fifths of post-operative civilians with much less tissue trauma sought relief through medication because they viewed the major surgery as a depressing and calamitous event. Clearly when you take into account the background in which the pain occurs, the reaction component assumes increasing significance and explains why large doses of morphine did not consistently alleviate brief bursts of experimental pain whereas small doses regularly controlled post-operative pain. The reaction component was obviously different in the two situations.

Beecher was quick to recognize the significance of the observation and was led to formulate the generalization that analgesics exert their principle if not entire effect on the reaction component or suffering component of pain perception. One implication of this hypothesis reached into pharmacology and resulted in the establishment of a dose-response curve for quantitating the effect of analgesic drugs. Houde and Wallenstein[2] studied chronic pain in cancer patients and again, if the reaction component were taken into account, they were able by separate trials and in different years to obtain entirely reproducible results. As did Beecher, Houde found that 10 mg. doses of morphine will relieve pain in 70 per cent of the studied population and larger doses are not significantly more effective.

What happens in the other 30 per cent? The notable finding in both Beecher's and Houde's studies is that one-third of the population studied is relieved by a placebo! By this method placebo reactors can be eliminated from comparative studies. The important consequences of this finding were obvious. One that the placebo effect has deeper implications because it supports the original thesis that the reaction component is a principle site of analgesic drug action. The other is that the remaining patients are good subjects to distinguish between analgesic agents and also to detect weaker analgesics.

One real accomplishment of Beecher's and Houde's studies is that a method has been developed in which subjective responses to a drug can be quantitated in a milieu in which innumerable and other subjective responses are constantly interacting to modify the response under scrutiny. We are repeatedly confronted with advertising claims for the merit of certain tranquilizing drugs. Now that quantitation is possible we must ask ourselves how have such responses been measured in relation to dose? By what established criteria have comparisons been made? At present there are no satisfactory answers because tests are based either on empirical experience, on casual observation in man or behavioral experiments in animals, that may not correlate with clinical circumstances.

Beecher's and Houde's work should now serve as a prototype for quantitative studies of drug effects in other subjective states.

L.H.N.

REFERENCES

1. Beecher, H. K.: Measurement of subjective responses. New York, Oxford University Press, 1959.

2. Houde, R. W. and Wallenstein, S. L.: Method for evaluating analgesics in patients with chronic pain. Drug Addiction and Narcotics Bull., Appendix F. 660, 1953.

Big Science And Little Science

Imperceptibly under our eyes there has grown up side by side two great monuments expressive of the scientific culture of our present civilization "Big science and little science."

Big science is characterized by the huge rockets, the high energy accelerators, the highflux research reactors, Little science is that which is distinctly more relevant to the problems of man on this planet, expressed by rapid developments of molecular biology, nuclear energy, atmospheric pollution, the problem of water, chemical contamination of the biosphere, conquest of viral diseases and of cancer.

Little science is concerned with enriching and the broadening of human life. Big science with national "prestige", coming out first in the "scientific olympics."

That we have come to the point where choices must be made as to which of these "monuments" we wish to build there is no doubt. We have imperceptibly been led along the road to "big science" by many factors. There has developed a dominant military and scientific cast, who, obsessed by the mirage of "prestige" have decided that we must compete with and surpass the U.S.S.R. in all areas. Major Gagarin's feat has certainly caught the worlds fancy and we may as well admit it. But are we wise in choosing manned flight into space as a primary event in the "scientific olympics?" The answer to this question depends in part on both practical and philosophic considerations. Of course, it might be held that a rich country such as ours is, should be able to afford both big and little science and this may be true. But a more sober analysis makes it very clear that we cannot pursue both with equal energy and that somewhere along the line, hard choices will have to be made.

On the practical side Weinberg[1] has pointed out that the amount of funds that will be needed to pursue manned flight into space and high energy physics is in the long run in danger of ruining us financially. The rate of change to big science is 10 per cent annually doubling every seven years. Our gross national product rate of change is doubling in 20 years. Clearly, if it keeps up, big science will consume everything. Sooner or later, it will become necessary to restrict the amounts to be devoted to science. At this time, we will have to make choices as to where the money should go. We will have to weigh the relative merits of a project in space, a project in high energy physics, a project in medical research, such as virology, cancer, molecular biology, a project in atomic energy, water conservation, land conservation, air pollution, oceanography, etc.

At this moment, Big science has the ball and is running it down the field with marvelous support from publicity, a military and scientific cast. Obviously, when money is to be spent, it needs public support. Big science is forced to take on a journalistic fiavor. There is danger that scientists will be spending money instead of thought. With money plentiful what is more natural than a rush to spend money, to order a nuclear reactor rather than to device a crucial experiment with the one at hand, or as Weinberg puts it "make additional large scale computations instead of reducing the problem to tractable dimensions by perceptive physical approximations". The line between spending money and spending thought is "blurring."

Fred Hoyle, the British astronomer, has argued against Britains going into large scale space research. He points out that intensive research in space is not worth the money and manpower, and does not jutify spending more on it than on any other branch of science. He argues that wherever science is fed too much money, it becomes fat and lazy. The tight intellectual discipline necessary for science is loosened. As Weinberg has further pointed out, big science already is suffering from journalitis, moneyitis and administratitis. The huge growth of big science has increased the number of scientific administrators. Large amounts of money needs many men to see it is being spent wisely. It becomes easier to tell other scientists what to do than do it yourself. More and more bosses are acquired. "With all the chiefs with their bellies to the desk, one hardly finds an indian at the bench."

Even if big spending and big science were carried out efficiently, we must still reflect on what have we to gain by this competing for prestige with the U.S.S.R. in this area. After all, the radiation hazard is not fully assessed, the biological effects are not too well known for the fast heavy particles. The cost estimate is staggering, 40 x 10^9 power and may turn out to be much more if we are to be guided by what happened to the estimate 10 years ago for the cost of a nuclear powered aircraft. After spending 1 x 10^9 we still have "words flying not nuclear airplanes." Just because a project is very big and very expensive does not mean it will be successful. Certainly the initial estimate is always far short of the mark.

What has been said above for manned space flights is also true of high energy physics. It too is wonderfully expensive. One linear accelerator in Stanford cost 600 million dollars and will require 400 million dollars a year to run until 1970. Such research may perhaps have more scientific validity than manned space travel and more prestige value because in this area we are ahead of the Russians. Nevertheless, as far as its remoteness from human affairs is concerned, it is equally as esoteric as manned flights into space.

As physicians, we should rather choose scientific issues which have more bearing on the world that is part of man's everyday environment, has more bearing on man's welfare than have either high energy physics or manned space travel. Some of these are areas in which our science is far out ahead of the Russians. The most spectacular is molecular biology. In the last decade, we have learned much about the essential processes of life, growth, protein synthesis, reproduction. The probability of our synthesizing living material from non-living before the end of the century is certainly as great as a successful round trip flight to the planets. Would not we all prefer to belong to the society that gave the world a cure for cancer than to a society that put the first astronaut on Mars? Should we not take pride in our conquest of polio, than worry so much about space flights and high energy physics.

Why should we not pursue nuclear energy which promises so much in helping to solve the problems arising from increasing population pressure on our resources. Then there is the problem of water, atmospheric pollution, chemical contamination of the biosphere. As citizens of a democracy, we should feel called upon to help make choices as to where our resources should go. Should we not study biology on earth rather than in space? There should be extensive debate on these over all questions of scientific choice. Unhappily, up to the present time, as scientists. we have been passive, we have allowed over-all scientific strategy involving stupendous sums to be settled by default or to be pre-empted by the group with the more skillful publicity department. In this sense, we have lost sight of our philosophy. Our real purpose especially as physicians, is the enriching and broadening of human life. If we are to establish monuments, let them not be frivolous ones unrelated to human welfare such as the pyramids and the sphinx were to the Egyptians. Let them be devoted to human health and human welfare on this earth.

L.H.N.

REFERENCE

1. Weinberg, A. M.: Impact of large-scale science on the United States. Science, 134: 161, July 21, 1961.

Hypothesis Or Conclusion?

If medicine is to become a science, it must learn to distinguish between a hypothesis and a conclusion. This involves a habit of mind. There is one habit which is content to simple acceptance of apparently stray, disconnected information. There is another which searches for some order in facts which are superficially isolated. The first habit never leads to a desire for an explanation of the facts, the second recognizes a problem which needs a solution.

The average physician takes blood pressures on his patients both males and females, and if he finds the blood pressure elevated, his most likely procedure would be to order something to reduce the blood pressure. He thus operates on a theory that in order to prolong life, he must attempt to restore the physiological state to as near normal as possible. At first sight this seems a reasonable approach. But to what extent is the physician actually achieving his aim of prolonging life by this procedure? He who asks himself such a question is ready for the formulation of a simple hypothesis dealing with the evaluation of a therapy. But even before the formulation of any hypothesis to test the value of any therapy, it is necessary to know what happens to a group of individuals with and without hypertension for obviously if the life span is not greatly altered by the abnormality, its therapy could have little effect on prolonging human life.

Bechgaard as a result of such a study found that women with a blood pressure of less than 200 mm. Hg. systolic did not suffer from a greater mortality than the general population of women of the same age. Even with more severe hypertension, the excess mortality of women of the same age is not great. However, it is greater in men with hypertension than others of the same age without hypertension as compared to women with hypertension. From these findings it is clear that evaluation of drugs in hypertension in women could not greatly assist in answering a question of the efficacy of any drug or procedure. On the other hand if men were to be used to study the value of a hypotensive regime in prolonging life, one might more reasonably be able to find an answer. Bechgaard did find that men with mild hypertension do have a higher death rate than men without hypertension. Are we then justified in a belief that if you lower blood pressure in a male patient it will prolong his life. Many physicians work upon this hypothesis as if it were true, but is it? If it were true, then a comparison of large numbers of males so treated, with males of the same age in the general population should show that the life of the treated hypertensive male has really been prolonged. As yet, this has not been done. There is no plea here not to treat hypertension. But if medicine is to become a science the physician must learn how to distinguish between a hypothesis, whose implications need verification, from a conclusion.

Another example of an area in medicine in which there is confusion between a hypothesis and a conclusion is in the treatment of elevated blood cholesterol levels in patients who have suffered from a myocardial infarct. The argument runs something like this: Some patients with myocardial infarction have a higher mean cholesterol level than a similar group of the same age in the same population without myocardial infarction. The lesions of atherosclerosis do contain large amounts of cholesterol. In certain animals lesions resembling human atherosclerosis can be produced by diets or other means that elevate blood cholesterol At this point the scientific physician would recognize a group of observations which seem to have some relevance to each other and justify the formulation of a hypothesis "if levels of blood cholesterol are directly or indirectly related to atherogenesis, then control of this factor by diet and drugs in patients with myocardial infarction should prolong life." But does it? The formulation of a hypothesis is not the conclusion. Instead, it sets the stage for critical experiments for evaluation of the truth of the hypothesis. This premature conversion of a hypothesis into a conclusion is emphasized so that we will understand what is presumed and what is proven.

In principle premature acceptance of a therapy which is designed to prolong life in chronic disease may be a hindrance rather than a step forward. The physician himself may be misled, the individual patient may be mistreated and the ultimate answer to the question of the efficacy of a therapy may be delayed or never obtained. It is true that the sick person demands some kind of treatment even if it be a placebo. Our profession has from time immemorial used drugs and other measures in the past, generally of doubtful value to give solace to the patient, and the sick person gained comfort from a wise and kind physician. Chance and clinical impression reigned supreme and a critical sense for the evaluaton of therapy lagged. At present with the development of effective and at times dangerous drugs, the physician has given up his role of magician and must turn scientist. The need for careful evaluation of the therapeutic effectiveness of drugs is at hand. Medicine having become a science, the medical man must learn to distinguish between a hypothesis and a conclusion. A hypothesis is formulated from relevant observations, a conclusion follows properly designed experiments to test the implications of the hypothesis.

L.H.N.

REFERENCES

1. Bechgaard, P., Kapp, H., and Nielson, J.: One thousand hypertensive patients followed from 16-22 years. Acta Med. Scand. (Supp. 312), 154: 175, 1956.

Helpern's Objectives

On the black marble wall of the lobby of the new modern, six-story building on the north-east corner of Fifth Avenue and Thirtieth Street in Manhattan, a motto in 3-inch alumnium letters. It reads: "Taceant colloquia effugiat risus hic locus est ubi mors gaudet succurrere vitae."

The translation is, "Let conversations cease. Let laughter flee. This place is where death delights to help the living."

This motto sums up succinctly the objectives of the new building, which officially became the headquarters of New York City's Chief Medical Examiner, Dr. Milton Helpern.

The legal responsibilities of the Chief Medical Examiner and his associates, Dr. Helpern explains, are to conduct "official investigation of sudden, unexpected, suspicious and violent death."

The work of Dr. Halpern, who has held the post of Chief Medical Examiner since 1954, and his staff is best known for investigations of the more than 1,000 homicides and suicides that occur in New York City each year. This is by no means the major portion of their work.

A few weeks ago, for example, Dr. Halpern was lecturing to a group of medical students when he was called to the laboratory. When he arrived his colleagues were examining the brain of a woman who had died a few days before.

The woman's sister had telephoned her repeatedly for two days without an answer, and became concerned. She went to the apartment and with the superintendent forced entry.

The apartment was a wreck and the woman was lying unconscious on the floor. She was rushed to the hospital and died forty-eight hours later.

At first, because of the condition of the apartment, foul play was suspected. It was then thought the death was suicide form an overdose of barbituates.

Neurological changes during the forty-eight hours she lived, however, caused the hospital staff to decide tentatively that a cerebral hemorrhage had been the cause of death.

As soon as Dr. Helpern and his asosciates saw the dissected brain, they knew the answer — delayed carbon monoxide poisoning.

Had the case occurred twenty-five years earlier, Dr. Helpern explains, it would have been recognized immediately, because the brain lesion resulting from this cause was fully described in professional literature and such cases were fairly common. Now they are rare, but not rare enough for Dr. Helpern, who has campaigned against faulty gas refrigerators for years.

When such cases do occur, the poisoning is so slow and insidious the victim becomes confused, staggers, knocks things over and frequently injures himself. This accounted for the condition of the apartment.

Immediately after determining the cause of death, Dr. Halpern, the police and Department of Health officials went to the apartment, performed an "autopsy" on the refrigerator and confirmed the cause.

The new $3,700,000 building is the largest, most modern center of its kind in the world. Its sixty-three laboratories contain the most modern equipment in medicine, chemistry, physics, toxicology, basteriology, virology and numerous other sciences.

** By Howard A. Rusk, M.D.; reprinted with permission of the author and of* The New York Times.

THE PRESIDENT'S PAGE

THE rapid moving events of today make it almost impossible for physicians to keep abreast of all the facts relative to medical practice, to medical organization and to the impact which the press has upon their patients. Many lay people are eager and ready to grasp anything which, on the surface, is free or has the color of a bargain. Such thinking of the public places the doctor at a disadvantage when the laity have not had the opportunity to become acquainted with the real truth of the matter. It is up to the physician to do all that he can to expose the truth of controversial medical affairs. Education is rewarding in all situations providing it involves the disclosure of the truth.

Physicians as well as lay people have been accredited of relaxing on certain responsibilities and allowing "Jimmie to do them". At present, we are faced with a political invasion of the medical profession which threatens our very integrity and appears to lead to the subjection of medicine to political influence thus opening the door to socialized medicine. The physicians in New Jersey who have opposed the King-Anderson Bill have been told that the monies granted from federal funds used to construct their hospitals entitles the government to the control of these hospitals. This is not true. Those monies so designated at that time were given free of current governmental influence; however, federal monies allocated under the proposed King-Anderson Bill to erect hospitals would be subject to federal influence. The Kerr-Mills Bill permits physicians the freedom of selecting the needy which require medical care at a low expense level and gives the doctor an opportunity to propose the allocation of state and federal funds for them. Another fact which must not be forgotten is that the ratio of needy aged citizens is not as great as has been stated by welfare personnel and is not as large as the ratio of the medical indigent below the age of 59 years.

We need leadership in the medical profession. Men who will assume the duty to present the true facts about the care of the sick and present these facts before public opinion becomes crystalized. Your president is urging all officers and members of the House of Delegates to consider themselves medical statesmen and make it their responsibility to place before the people in their respective communities the truth relative to the current medical problems. A clarification and an understanding of the controversial problems will result in improved public relations between physicians and the people of our state.

CLYDE L. DEMING, M.D.

FROM THE GENERAL MANAGER'S OFFICE

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HOUSE OF DELEGATES ANNUAL MEETING

May 2, 1962

The Annual Meeting of the House of Delegates was held on the first day of the 170th Annual Meeting of the Connecticut State Medical Society, May 2-4, 1962 at the Statler-Hilton Hotel, Hartford, Connecticut. The following items of business were considered and acted upon:

Reports Of Officers And Committees

The reports of officers were received and will be published in Connecticut Medicine; also the report of the General Manager and reports of various committees.

Election Of Officers And Committees 1962-63

Officers: The following slate was elected:

President: Clyde L. Deming, New Haven (elected 1961)

President-Elect: Morris P. Pitock, Bridgeport

Vice-President: Ralph L. Gilman, Storrs

Secretary: Orvan W. Hess, New Haven

Treasurer: Isadore S. Goldberg, Torrington

Speaker of the House of Delegates: Michael R. Scully, Bridgeport

Vice-Speaker of the House of Delegates: Clifford E. Wilson, Norwich

AMA Delegate: (Jan. 1, 1963—Dec. 31, 1964) James R. Cullen, Hartford

Alternate AMA Delegate: (Jan. 1, 1963—Dec. 31, 1964) Stewart P. Seigle, Hartford

AMA Delegate: (Jan. 1, 1963—Dec. 31, 1964) Ellwood C. Weise, Bridgeport

Alternate AMA Delegate: (Jan. 1, 1963—Dec. 31, 1964) Max Caplan, Meriden

AMA Delegate: (Jan. 1, 1962—Dec. 31, 1963) Norman H. Gardner, East Hampton (Elected 1961)

Alternate AMA Delegate: (Jan. 1, 1962—Dec. 31, 1963) Vincent A. Gorman, Bridgeport (Elected 1961)

Councilor-at-Large: Denis S. O'Connor, New Haven

Louis H. Nahum, New Haven, was elected Editor of Connecticut Medicine. (Not an officer).

Committees: Divisional Boards and Committees elected by the House of Delegates and by the Council for 1962-1963 will be published with the roster of members in the August issue of Connecticut Medicine.

Presentation Of Awards

Past President Award: Thomas M. Feeney, Hartford

Press Awards: Robert W. Lucas, Hartford Times (Editorial Writing)

Robert A. Carter, New Haven Journal Courier (Feature Writing)

Whitney W. Jacobs, Hartford Times (News Reporting)

New Business

Amendments to Bylaws: Four proposed amendments to the Bylaws were presented and immediately tabled for consideration and action at the next regular meeting of the House of Delegates; they are as follows:

1. Article V, Section 2 of the Bylaws be amended by the addition of a new subsection (c), which shall follow immediately after present subsection (b), and shall read: "all past presidents of the Society, who shall be ex-officio members of the House of Delegates, without the privilege of voting.

2. Article VII, Section 1, Paragraph 7 be amended by deleting this paragraph, and substituting therefor the following: "The Chairman of the Council and the Councilor from each county shall be the Nominating Committee of the Society. The Chairman of the Council shall be the chairman of the committee. The committee, after consultation and advising with the entire Council, shall report its

nominations to the first session of each annual meeting of the House of Delegates. Following this report, nominations may be made from the floor."

3. Article VII, Section 2 of the Bylaws be amended by the deletion of the clause, "and one additional Associate Councilor from each component association having over 750 members".

4. Article VII, Section 2 of the Bylaws be amended by the addition of the following sentence after the term Councilor-at-Large, "In the event that both the Councilor and the Associate Councilor (s) from a county association cannot be present at a council meeting, the President of the county association may appoint a substitute councilor.

Resolutions

The following resolutions were introduced and, after consideration by the proper reference committees and the entire House of Delegates, adopted.

Resolution Re Hospital Staff Appointment

BE IS RESOLVED: That the House of Delegates of the Connecticut State Medical Society reaffirm the historic policies with respect to the pertinent standards of eligibility for appointment and/or reappointment to the medical staffs of General Community Service Hospitals, as follows:

1. Good moral character and high ethical standards, as determined by State Medical Examining and Licensing Boards, membership in organized medical associations and/or other authorized medical agencies.
2. Professional competence, as determined by these same agencies.
3. Willingness to participate as a staff member in either teaching, research or communty service programs.
4. Willingness to abide by the hospital rules which govern the professional conduct of staff members, and be it further

RESOLVED: That the House of Delegates of the Connecticut State Medical Society affirm that criteria of eligibility for appointment and/or reappointment to hospital staff membership which deviate significantly from these historic policies, or which might tend to cause the transfer of primary responsibility and loyalty of the physician from his patient to any other party or parties, or which might tend to abrogate the right of a patient to choose his own physician, are unethical because they disrupt the patient-doctor relationship and are therefore contrary to the public interest, and be it further

RESOLVED: That the content of these Resolves be transmitted to the governing bodies of all General Community Service Hospitals in Connecticut.

Resolution On Certain Third Party Payment Policies

WHEREAS: There are increasing instances of hospitals in Connecticut receiving monies from Third Party Payment agencies for physicians' care of patients, either directly or indirectly, and

WHEREAS: This constitutes the corporate practice of medicine by hospitals, which are controlled by lay directors, and

WHEREAS: This thereby further takes the control of patient care out of the hands of physicians, and

WHEREAS: With increasing government participation as a Third Party Payment agent for payment of physicians' fees, this practice of paying hospitals for physicians' care of patients may give government control over the practice of medicine, therefore be it

RESOLVED: That the House of Delegates of the Connecticut State Medical Society hold that beneficiaries of Public Act No. 578 (Connecticut, 1961) who are admitted as patients to General Community Service Hospitals in Connecticut shall have the status of private patients of privately practicing physicians, and be it further

RESOLVED: The House of Delegates of the Connecticut State Medical Society hold that no fees (payments) made by any Third Party Payment agency for services rendered to its beneficiaries or policyholders by such (privately practicing) physicians shall be paid, directly or indirectly, to any General Community Service Hospital, and be it further

RESOLVED: That copies of these Resolves be distributed to the Boards of Directors of General Community Service Hospitals throughout Connecticut.

Resolution Re Joint Committee On Physician-Hospital Disagreements

BE IT RESOLVED: That the House of Delegates of the Connecticut State Medical Society direct the Council of CSMS to re-open negotiations with the Connecticut Hospital Association for the purpose of establishing an impartial joint committee to review and assist in the resolution of problems involving the dismissal of physicians from hospital staff membership and/or reduction in privileges of hospital staff members.

Report Of The Chairman Of The Council

During the months since the meeting of the House in December, the Council has held four meetings. There has been consideration of the usual large number of routine items, such as resignations from committees, and replacements, exemption from dues, referral of communications and requests to the appropriate committees of the Society. Action on requests from various committees includes the approval of various resolutions submitted by them. Among these may be mentioned the following as representative of this group:

1. Use of seat belts in cars by physicians.
2. Commendation of the Society of Pathologists in its program regarding medical technologists and the improvement of their training.
3. Smoking in hospitals.
4. Requesting the Surgeon General of the U. S. Public Health Service to establish standby plans for assistance of physicians in handling predicted epidemics before making such predictions public.
5. Urging the cooperation of members of the county and local medical societies in the development and implementation of school health and physical education programs.
6. Endorsing the Connecticut Eye Bank and Visual Research Foundation Inc., under the provisions recommended by our Committee on Eye Care and the EENT section of the Society.

Since December, there have been two meetings of the so-called Four-Agency Conference. You have been represented at these by your President, the Chairman of the Council, the General Manager and Dr. Ellwood Weise, Sr. The other three agencies have been the Connecticut Hospital Association, Connecticut Medical Service, and Connecticut Blue Cross. At the second of these meetings, when the Society acted as host, we presented, after discussion in the Council, a proposal for a day-long conference on medical care, health insurance and pre-payment plans which had been recommended by the Committee of Past Presidents. It was our thought that to this conference there should be invited a wide representation of various community organizations and leaders, including those from the press, labor unions, Chambers of Commerce and the various service clubs, for the purpose of presenting to them, in forceful fashion, the positive facts concerning the amount and quality of medical, hospital, and other health care there is available to the citizens of the State, and the many prepayment plans and other types of medical insurance to help meet the costs of medical care in this State. This idea got a very cool reception from the representatives of the other agencies, who did not seem to want to engage in such a cooperative venture but preferred to pursue their own individual programs in this respect. At the third meeting early in April, representatives from the Health Insurance Council were present by invitation, as had been suggested by your representatives even at the first meeting. It might now be called the Five-Agency Conference. All of this is an attempt to develop, if possible, a more unified approach to the multiple medical-economic problems assailing us from all sides. Perhaps some good may yet come from it.

At the January meeting, Dr. Ellwood C. Weise, Sr., submitted a report on the liaison meeting in Boston between representatives of the New England State Medical Societies and members of the A.M.A. Council on Medical Education and Hospitals. Drs. Vincent A. Gorman and Howard J. Lockward were the other representatives from this Society. The meeting dealt very largely with the question of intern and residency programs and the marked shortage of personnel for the available vacancies. This question, particularly as regards non-university connected hospitals is a very serious problem, and the Council has requested a subcommittee to study the feasibility and desirability of establishing a state-level Committee on Medical Education and Hospitals which would maintain close liaison with the A.M.A. counterpart.

We come now, as always, to the subject of Connecticut Medical Service. The liaison committees met February 1, 1962, at which time a number of proposed changes in the by-laws of C.M.S. were presented. Most of these were for bringing up to date the present bylaws, but one provision would have changed the term of office of all Directors from two to four years. The Liaison Committee spoke strongly against this, feeling that with no limitation on the number of terms a man could serve, it was preferable to leave the length of the term at two years. The C.M.S. Board of Directors has not adopted this proposed change. The joint nominations to the Medical Advisory Committee and the appointment of Dr. Allan Ryan as Chairman and Dr. Francis Gallo as Vice-Chairman were mutually agreed upon.

The next item at this meeting was the prior review of the Proposed Amendment to the Preferred

Contract. Your Committee expressed strong disapproval of the submission of this Amendment at the present time and strongly urged C.M.S. to consider other alternatives for utilizing their surplus. We particularly urged amendments which would increase the benefits of C.M.S. members, particularly those of very limited means, such as the aged, without increasing the service benefit income limits or payments to physicians. However, C.M.S. did not see fit to take any further action on these suggestions but, within a week, formally presented the Proposed Amendment in "complete and final form" to the Council for action. Because there was barely a quorum of the Council on February 15, due to the severe snow storm, action was deferred until the meeting in March when there was a much greater representation present. At this meeting, it was accepted as in complete and final form, and the procedures for its consideration and action on it have been initiated and are now in progress. The letter sent out over the signatures of Dr. Feeney, Dr. Richards and myself was authorized by the Council and summarizes the reasons for the adverse opinions of the Council on the matter at the present time. Mr. Coolidge, the President of the C.M.S., had presented to the Council a statement on this Amendment to the Preferred Contract with a request that it be published in Connecticut Medicine. The Council declined to authorize its publication because it felt that it presented only part of the full picture and that there was not sufficient time to prepare our point of view before the publication deadline. You have received, along with the Proposed Amendment, this statement from Mr. Coolidge directly from C.M.S. You can readily see there is a marked difference of opinion on many aspects of this whole subject, not so much on the Proposed Amendment itself, but on the methods by which it was developed and presented to the Society. Each of you will have to weigh all of these aspects carefully when you are called upon to take final action.

As a result of a report presented to the Council by the General Manager concerning many aspects of Third Party agencies, particularly those aspects which seem to be inimical to the best interests of physicians and the preservation of the private practice of medicine, the Council instructed the President, the Chairman of the Council, the General Manager and the Society's Third Party Payment Committee to meet as a group for the purpose of studying this whole problem. It is hoped that this group may be able to draft a basic policy as a guide for dealing with these agencies in a consistent and positive manner rather than to continue to consider each program individually and often in a manner inconsistent with the handling of some other program. There has been one meeting, but there has not been sufficient time to draft such an important guide to policy for presentation at this meeting.

At the Council meeting of April 26, four resolutions from Fairfield County Medical Association were received. The first one was that the Society prepare a broader basic concept of Third Party Payment relationships. We feel that the action already taken by Council, as noted in the preceding paragraph, satisfies this request. The second was that the Society augment its support of the Kerr-Mills Act with increased communication to the members for a clearer understanding of the Act and its operation. The Council has directed that this be done by including material about it in an early issue of Connecticut MD. The third suggested the State Society continue its liaison relationship with the Commissioners of Welfare, Finance, and Control to develop a realistic approach to their handling of medical care problems. The Council had already received from the Committee to Formulate General Third Party Payment Policy a recommendation to this effect and has directed the Advisory Committe to the Commissioners of Welfare, Finance, and Control to act in a liaison capacity with them with specific reference to the Medical Assistance to the Aged program, and of reporting periodically to the Committee on Third Party Payments as to the experience of the MAA program regarding the participation of physicians and the payment of monies to physicians under MAA. The fourth resolution requested acceleration of the Relative Value Study. The Council has directed the Chairman of that Committee to proceed forthwith to complete this project.

There was also received, at the last Council meeting, a resolution from the New Haven County Medical Society in regard to eligibility for hospital staff appointment. This resolution, as amended by the Council, will be presented to you today for action. Copies of it will be distributed before the afternoon session.

This report of the actions of the Council is necessarily incomplete but it does furnish you a summary of the more important actions taken since the last meeting of this House.

Respectfully submitted,
Ralph L. Gilman, M.D.
Chairman.

Report Of The General Manager

As our brethren in the clergy are wont to begin, the text of my sermon on this occasion comes from the editorial page of the *Wall Street Journal,* Thursday, April 26, 1962. In a piece called: "A Manufactured Crisis," the author advances this opinion. He says: "One of the arguments favored by the advocates of Federal aid to education is the alleged college 'crisis.' Far more students will be trying to go to college than there will be places for, it is said; therefore, the Federal government must step in with financial help for them and for the construction of facilities, among other things." . . . "(Now) A booklet put out by the Prudential Insurance Company terms the so-called enrollment crisis a 'statistical illusion.' The illusion has come about in the following manner: According to one admissions officer, some 50% of all college applications are sent to fewer than 10% of the available institutions." . . . "But there are many other colleges where a boy or girl can get an excellent education." . . . " (Also, since) students customarily apply to more than one college . . . the Prudential booklet estimates that from 25,000 to 50,000 more places exist in colleges (today) than are being filled." . . . "What we have here is not a question of theory, or of the philosophy of Federal aid to education. These are facts which are readily available to the proponents of such aid. It is a distasteful business when people manufacture an illusion in an attempt to panic the nation into a further extension of the already long arm of Government."

Sad to relate, this business of creating illusions in order to increase the power of the national Administration is not confined to the field of education. In the related matter of financing health services for older people, we in medicine are ourselves receiving some pretty rough treatment at the hands of the Federal illusionists and bid fair to become the innocent pawns in one of the greatest pieces of political legerdemain in the history of our country. This trick to end all tricks—if it can be successfully pulled off—is to make the American system of medical care disappear into some great bureaucratic beyond, never to return again in its present form.

Several weeks ago, the editor of a national publication, *New Medical Materia,* requested me to write an article based on the rather provocative title: "Nobody Really Wants Federal Health Care For The Aged—Except The Politicians." The piece was duly written, proudly submitted and, it pains me to say, summarily rejected on the grounds that it was too lengthy to be published without extensive editing and this I would not permit. Thus it happens that while countless readers from Maine to California will never have an opportunity to gather the pearls of wisdom which fell from my pen, it is my hope that you in the House of Delegates today may find something of interest in the thoughts I tried to put into words.

The theme, as I have said, was to be "Nobody Really Wants Federal Health Care For The Aged—Except The Politicians," and I began the article as follows: "First off, let me gently disclaim parenthood for the title . . . It was selected for me by the staff of *New Medical Materia,* and while I am not in basic disagreement with what it implies, it does seem to me a little too broad and general if we want to be entirely accurate."

"I say this for three rather specific reasons. First, a great many fine legislators on both sides of the aisle do *not* want to impose Social Security medicine on *any* segment of our people, and a great many more are being pressured by the Administration into lending half-hearted public support to the King-Anderson measure, contrary to their conscience and against their better legislative judgment. After all, when Secretary Ribicoff says: 'This is the hottest political issue in a long time,' he really means it. And when the President (looking ahead to the Fall elections) warns Democratic office-holders, in effect, that 'Big Brother has his eye on you!', it must be assumed he isn't just kidding."

"Second, so befuddled is the general public on this issue—so confused by being bombarded with inaccurate and misleading cliches—it is extremely doubtful that the average citizen really knows what the plan *is,* let alone whether he might want it. For all that we hear so much nowadays of 'the people' *demanding* social medical financing, is it not rather strange that so many prominent New Frontier officials and their numerous underlings are turning up, day after day, in even the remotest parts of the country (and at taxpayers' expense!) attempting, so it is reported, to 'whip up grass-roots support for the Administration's bill'? It seems to me that this is sort of running our traditional 'grass-roots' machinery in reverse, and this may well be what prompts a staunch Democrat like Senator Robert S. Kerr of Oklahoma to warn us that: 'The least they can do is to tell the 16½ million people over 65 the truth about this proposal. . . .' "

And speaking of the truth, I am sure most of you are aware that the President is to address a rally at Madison Square Garden in New York on May 20th. Here, I suppose, we will see a grand-scale reproduction of similar smaller "spontaneous" rallies recently held here in Connecticut, wherein labor union groups round up the old folks in buses, provide them with box lunches and give them instructions to cheer and applaud the guest politician on cue. In this way, it is said, the President can receive their beseechments to get his medical bill passed and to carry back to Washington with him a big load of that "grass-roots" enthusiasm to which I just referred. Now, no matter how strongly we may feel about this King-Anderson thing, I am sure none of us would wish to deny interested oldsters their right to free assembly but it is interesting to speculate as to where they all were when our General Assembly was holding hearings on implementation of the Kerr-Mills Program in Connecticut. I believe I can state without fear of being corrected that nary a single member of any local chapters of the "senior citizen" organizations who will be in New York on the 20th showed up to join with us in assuring that Public Act 578 would be enacted for the benefit of those among them who really need help. Could it be that the unions chose to hold back on the buses and free lunches on that occasion? Can it be that the supposed spontaneity of the old folks' demand for Social Security medicine is a measure *not* of their own personal interest, but of the political interests of organized labor? I not only think it can be—I think it *is!*

Reflecting back on the *Wall Street Journal* editorial with which I opened this report, it occurs to me that Senator Kerr's plea for "the truth" in this matter is not so much for a greater degree of honesty in the Administration's approach to the legislation as for a lesser degree of illusionry. In addition to the more apparent tragic effects which powerful and misleading propaganda can have on public opinion, there is the equally serious but more insidious influence such political pressures can have on the behavior of many present and future aspirants to public office. For example, let us consider which is likely to be more appealing to the average unthinking voter: the candidate who studies and evaluates the facts about medical care available to older people and their ability to pay for it, deduces from these facts that there is no need for Social Security financing of the high quality health services they are already receiving and paying for, and goes before his potential constituents to truthfully inform them why he cannot, in good conscience, possibly support a dangerous bill like the King-Anderson proposal; *or,* on the other hand, the political demagogue who, ignoring all the documented contrary evidence presented by his opponent nevertheless has a stomach strong enough to permit him to go before the people as a Santa Claus with a bag full of tricks and, with arms dramatically extended in mock blessing, tell them of his practically exclusive concern for the well-being of every "Mary and John Jones who live on Maple Street in Anywhere, U.S.A." From emotional appeals of the latter type, regularly put on by prominent figures in the Administration, derives the weak philosophy of "me-tooism" and the "you-can't-beat-city-hall" attitude which unfortunately seems to be slowly infecting a number of individuals in politics today who might normally constitute a "loyal opposition." Let us hope there will emerge leaders who will emphatically reject this philosophy and give the people the facts—an understanding—and a choice to make.

But continuing with the rejected article: "Finally, the big push to 'put over' this radical plan actually comes neither from the people nor from the politicians, but from behind-the-scenes social manipulators—in particular the Undersecretary of Health, Education and Welfare, Wilbur J. Cohen. It is certainly no secret that this man, who advocates at least a 20% Social Security tax on up to $9,000 of income because, he says, 'people just do not know how to spend their money prudently,' has been working diligently for more than twenty years to establish a national, compulsory, bureaucratic order for American health care; and, like former Congressman Forand, freely admits that the current King-Anderson legislation constitutes only a 'foot-in-the-door' approach toward realizing his ultimate dream of getting what he jovially refers to as 'the whole ball of wax' or, in our language, socialized medicine."

Please bear in mind that I was asked by *New Medical Materia* to discuss only the politics of this proposal; *not* the proposal itself. So I continued: "The obvious political aspects of the current go-around on federal health financing are well exemplified by a Democrat-sponsored TV interview broadcast during the presidential campaign of 1960. On that occasion, then candidate Kennedy was shown talking to a Mr. McNamara on the back porch of the latter's home, and was successful in getting the old gentleman to admit that he 'would sure have liked it if the Federal government could have stepped in and helped him' pay the costs of medical treatment of a fractured hip."

"It was a touching scene, indeed, and one calculated to bring in a good many votes on election day. There was only one thing wrong with it. It was as phoney as a three dollar bill! Within 24 hours after this 'commercial' was first sent out over the airwaves, it was authenticated that Mr. McNamara subscribed to both Blue Cross and Blue Shield and would have been liable for an out-of-pocket balance of only about $40 on his total medical costs of $706, had he not elected to occupy higher-priced accommodations during his hospital stay. What does this prove? To me, it proves beyond question that however much Mr. McNamara (and millions of other oldsters) would have *liked* to get some of what Candidate Kennedy was selling, it is clear he evidenced no demonstrable *need* for a tax-supported handout of this kind."

"Today, similar carefully dramatized misrepresentations can be seen or heard almost every day in the Administration's current bid to gain political support for its radical health legislation. Regrettably, the communications media sometimes participate unwittingly in this flim-flam. But often such participation is quite deliberate. As just one example of what a biased press can do, consider this: Giving no recognition whatever to the fact that millions upon millions of over-65's, like Mr. McNamara, *already have* voluntary health cost protection which is generally far superior to anything Congress is contemplating, syndicated columnist Drew Pearson recently castigated 'a wilful coalition of ten Republicans and a handful of Democrats (on the House Ways and Means Committee) for blocking medical care for 16 million elderly Americans *unable to pay* the high cost of private health insurance.' The President often says this, too, and so do Mr. Ribicoff and Senator Humphrey and Walter Reuther and many others—bold-faced and unashamed. Before you know it, large groups of grossly uninformed citizens are likely to be wrinkling their brows in unwarranted concern over what is always called 'the problem,' and reluctantly concluding that the government just *has* to do something about it."

" 'There are two tough factors influencing this (willful) coalition,' Mr. Pearson went on to say, 'One is Democrat Wilbur Mills of Arkansas, chairman of the committee . . . (and) . . . the other is the American Medical Association.' Now, we doctors certainly take our hats off to men like Rep. Mills as able legislators who still have the moral courage to base their decisions on facts and not on contrived emotionalism. But this business about the AMA is getting to be pretty sickening! If so much were not at stake here, it might perhaps be amusing to observe how much time and effort is being spent by Administration people and others running down the medical profession, and how little in forthrightly explaining the true nature of this controversial legislation to the public. As Rep. Thomas B. Curtis (Mo.) of the Ways and Means Committee was prompted to observe last summer, after hearing the impassioned testimony of a Mr. Joe Swire of the International Union of Electrical Workers, AFL-CIO: 'The bulk of your paper . . . is devoted to attacking your opponents; not to discussing the issue at all . . . , which frankly is of very little help to this Committee. . . . I am not concerned about whether the AMA is for this thing or if labor is. I am interested (only) in your arguments; their arguments.' "

"It's all rather like using a 16-pound sledgehammer to do away with an annoying flea! Let's be sensible about this. Simple logic will lead any thinking person to the obvious conclusion that the AMA has neither the numbers, the money nor the influence (of itself) to forestall enactment of the King-Anderson Bill. Perhaps, however, it is serving as one of the 'Minutemen for Freedom' the President called on to arise in his inaugural address. In any event, to disagree openly is certainly not un-American and this concerted attempt to make the AMA a 'whipping boy' reflects little credit on either the Administration or its proposal."

"These are but a few of the manifestations which lead me to believe that in many quarters, unprincipled politics, rather than any real concern for the aged, lies behind current attempts to legislate away our present fine combination of high quality medical care and expanding voluntary health insurance. What it all boils down to, I guess, is that a choice must be made between big, centralized government with its tempting promises of security, and limited federal control of our lives with the preservation of individual freedom."

I enjoyed very much putting this little article together for the magazine, but there is always something a little frightening about having one's words printed and made public. Take for instance the words of John F. Kennedy which *he* set down on paper while still a Senator: "The scarlet thread running through the thoughts . . . of the people is the delegation of great principles to that all-absorbing leviathan—the State. Every time we try to lift a problem to the Government, to the same extent we are sacrificing the liberties of our people."

Lofty words, those—words calculated to keep a people free! Somehow, though, the admirable concept of government they convey is seldom heard on the banks of the Potomac today. Now, it seems, there's a quite different philosophy molding the nation's future. This one is not nearly so elevating to the spirits, and is perhaps best defined by a recent pronouncement of National Democratic Chairman, Mr. John M. Bailey. Summarizing the primary function of the organization he heads, Mr. Bailey says: "Our job is to make sure the people know *what we've done for them* lately."

If only we could turn back the clock just a *little* bit!

Pertinent to the matters I have touched upon today—the political aspects of health and medical care—I am pleased to be able to report to you that progress is being made in the direction of enabling physicians and their associates to participate more actively in this important facet of citizenship. Since the House of Delegates gave its blessing to the formation of a medical political education and action committee last December, a number of dedicated people from the Society and its Woman's Auxiliary have accepted the responsibility of forming such an organization in Connecticut. The new group is called COMPAC, standing for Connecticut Medical Political Action Committee, and it is in the process of becoming affiliated officially with the AMA's national group, AMPAC.

COMPAC now is operating under a formalized constitution, and has charted a course of action which will be implemented in cooperation with a professional public relations firm. The COMPAC Board of Directors is chaired by Dr. C. John Satti of New London and, from reports received by the General Manager, it appears to me that a "Medicine in Politics" program is definitely on the march in Connecticut.

Many of you in this room today, as leaders of medical opinion in your local communities, will undoubtedly be called upon by COMPAC to serve in advancing this worthy cause among your colleagues and friends but, whether you are asked to serve in an official capacity or not, it is hoped that you will identify closely with COMPAC and do all you possibly can to assure its effectiveness, now and in the years ahead.

Respectfully submitted,
William R. Richards, M.D.
General Manager.

COUNCIL MEETING

Thursday, April 26, 1962

A meeting of the Council was called to order by the Chairman, Dr. Gilman, at 2:00 P.M. on Thursday, April 26, 1962. Present in addition to the Chairman were: Drs. Feeney, Deming, Goldberg, Hess, O'Connor, Caplan, Gardner, Scully, Ogden, Bradley, Cornwell, Grant, Rentsch, Murray, Jr., Gorman, Martin, Egan, Davis, Phillips, and Chartier. Absent were: Drs. Cullen, Wilson, Katzin, Purnell, Gevalt, and Hastings. Also present: Mrs. Lindquist, Mr. Burch, Dr. Richards and Dr. Henry Caplan (guest).

APPROVAL OF MINUTES. After some discussion of the accuracy of several words and phrases used in reporting certain of the proceedings of the meeting of March 14th, it was VOTED to approve the minutes as printed.

ADDENDUM TO MINUTES—MEETING OF 1/16/62. It was VOTED to add the following to Item 4 of the minutes of the meeting of January 17, 1962, an omission having been made through oversight:

"On the subject of the Annual Meeting, Dr. Feeney reported that Congressman Judd had sent his regrets that he would be unable to accept the Society's invitation to speak at the Annual Dinner. The Committee on Local Arrangements has contacted AMA about the possibility of obtaining Dr. Edward A. Annis as the speaker. It appears that Dr. Annis is available and could come, provided the Society would be willing to pay his honorarium of $400, his usual travel and subsistence costs, and to arrange a public forum at which Dr. Annis can speak to a large general audience in addition to speaking at the dinner. Dr. Feeney indicated that the Committee on Local Arrangements is moving ahead to set up the public forum and believes one or more service organizations in the Hartford area will be interested in sponsoring such a forum. It was VOTED to authorize payment of the speaker's honorarium, usual expenses for Dr. Annis and Mrs. Annis, and to commit the Society to pay its proportionate share of other reasonable expenses necessary to give Dr. Annis proper public exposure during his visit to Hartford on or about May 3rd."

Dr. Gilman reported that he, Dr. Feeney and the General Manager had assured the Connectocut Chamber of Commerce of the Society's material and financial support of the luncheon being held by the Chamber on May 3rd., at which Dr. Annis is to speak. Dr. Gilman stated that this action had been taken in accordance with the Council's decision "to commit the Society to pay its proportionate share of other reasonable expenses" reported above. It was VOTED to approve the action taken by the Chairman, the President and the General Manager in this matter.

COORDINATOR FOR MEDICARE PLAN. It was VOTED to accept the resignation of William R. Richards, New Haven, as Coordinator for the Medicare Plan, and it was further VOTED to appoint Robert W. Hart, Hamden, to succeed Dr. Richards in this post.

HOUSE OF DELEGATES MEETING—May 2, 1962. As to the order of business, seating of delegates, voting membership and other aspects of the first meeting of the House of Delegates to be held under the new bylaws (effective 8:00 A.M. on May 2, 1962), areas of possible conflict between the old and new bylaws were discussed. Following this discussion, the following actions were taken:

a. It was VOTED that if the Speaker of the House rules that elected Councilors of any county medical association who are entitled to be seated at this meeting of the Council (4/26/62) are to be seated as voting members of the House of Delegates on May 2, he be supported in this ruling by the Council.
b. It was VOTED that the Council support a motion to be introduced at the time the House of Delegates convenes on May 2nd which will call for the seating of all past presidents of the Society as ex-officio, non-voting members of that meeting of the House.
c. It was VOTED to direct the Chairman to present in his report to the House of Delegates the following motion as a recommendation of the Council:

   IT IS MOVED: That Article V, Section 2 of the Bylaws be amended by the addition of a new subsection (c), which shall follow immediately after present subsection (b), and shall read: "All past presidents of the Society. The past presidents shall be ex-officio members of the House of Delegates without the privilege of voting."
d. A motion seeking to seat the Managing Editor of Connecticut Medicine as a voting member of the May 2nd House of Delegates meeting was lost. (The office of Managing Editor ceases to exist at 8:00 A.M. on May 2, 1962).

REPORT OF THE COMMITTEE ON INVESTMENTS. Isadore S. Goldberg, Treasurer, reported for this Committee on a recommended plan for an investment program for the Society. It was VOTED to recommit the report to the Committee with instructions to provide printed copies of the report and recommendations to each member of the Council in advance of the next Council meeting.

SUBCOMMITTEE ON OPINION SURVEY. For the subcommittee, Norman H. Gardner, Chairman, filed a report which summarized many of the findings of the Opinion Survey and made a recommendation concerning future utilization of the completed Report. It was VOTED to accept the Subcommittee's report and its recommendation which reads as follows:

"The Subcommittee on Opinion Survey recommends: That upon resumption of Council activities after the Annual Meeting of the House of Delegates in May, a special subcommittee of the Council be appointed to study and review the Opinion Survey Report, and to recommend to that Subcommittee the assignment of pertinent sections of the Report to appropriate Standing or Special Committees for detailed evaluation and possible policy formulation."

COMMITTEE ON REHABILITATION. After considering a tentative proposal of this Committee that the Society jointly sponsor with the State Department of Health and the Connecticut Health League a federally-financed study project on medical and physical rehabilitation services available in Connecticut, social agencies, etc., it was VOTED to request the Committee on Rehabilitation to provide the Council with more information on the project, with specific reference to its proposed modus operandi, Society supervision of its administrative and financial responsibilities, personnel assignments, etc.

CONNECTICUT HEALTH LEAGUE. Responding to a request from the Executive Committee of the CHL for an indication of the Society's interest in a possible CHL committee to study the subject of prepayment for health services outside of the general hospital, it was VOTED to notify the Executive Committee of the Connecticut Health League that the Council is interested in the subject and, if such a committee is activated and a request is made, the Council will designate representatives of the Society to participate in the committee's activities.

LEGAL COUNSEL. The General Manager reported on his discussions with several law firms as to their interest, competence and willingness to undertake a comprehensive study of the legal and statutory limitations which apply to the corporate practice of medicine by hospitals in Connecticut. After careful consideration of all agencies contacted, it was VOTED to request Mr. Edward L. Marcus, New Haven, to consider undertaking this study for the Society and to direct the General Manager to determine from Mr. Marcus what financial arrangements would be expected and to report the proposed arrangements to the next meeting of the Council.

COMMITTEE ON RURAL MEDICAL SERVICE. Receiving a request from this Committee that its name be changed to the "Committee on Rural Health", and being informed that such a change has already been incorporated in the new bylaws, effective May 2nd, it was felt that no action on this request was necessary.

COMMITTEE ON PUBLIC HEALTH. It was VOTED to take no action on a resolution presented by this Committee which recommends that elective surgery about the mouth and throat be done in the winter and spring, and/or be prohibited during the poliomyelitis season if there is an increased prevalence of the disease. Basing its decision on past precedent, it was the feeling of most Council members that these are determinations which should be made by individual practitioners and hospitals in the light of recommendations made on the subject by the State Department of Health and the U.S. Public Health Service.

PROPOSED SECTION ON NEUROLOGY. It was VOTED to recommend to the House of Delegates that a Section on Neurology be authorized, provided the group organizing the proposed section will change its proposed bylaws in such a manner that all Active and Life Members of the Connecticut State Medical Society are eligible for membership in the section and also eligible to hold office and to vote.

NEW HAVEN TAXPAYERS RESEARCH COUNCIL. It was VOTED to enroll the Society as a dues-paying member of this organization and to authorize payment of dues in the amount of $25.00 (based on assessment). Since the Society's building and property are located in New Haven and taxes on the premises are paid to the City of New Haven, the opinion was expressed that support of this organization could properly be undertaken by the Society despite the fact that its operation is limited to a single area of the state.

CONNECTICUT MEDICAL SERVICE, INC.

a. E. Tremain Bradley, Councilor from the Fairfield County Medical Association, reported on the Annual Meeting of that Association, particularly with reference to the proposed Amendment to the CMS Preferred Contract. He, Dr. Gorman and Dr. Scully expressed regret that at such a well-attended meeting, with more than 300 members present, the Association had neither adequately discussed nor acted upon the proposed Amendment and all felt it unlikely that such a representative turnout would be achieved at a now necessary special meeting. The point at issue in the decision of the Fairfield Association not to act upon the Amendment on 4/10/62 was that the members had not then received the descriptive material on the proposal from CMS, a fact which had been heavily emphasized by the General Manager who had been called upon for his opinion. Dr. Bradley's remarks were received as information.

b. Report and Recommendations-Committee on Third Party Payments. The Standing Committee on Third Party Payments, having met on April 14, 1962, filed a report as follows:

    1. That the House of Delegates of the Connecticut State Medical Society disapprove the proposed Amendment to the Preferred Contract of CMS for the following reasons: The Amendment, as proposed is too competitive to, and would destroy the sale of the Community Contract. The proposed changes are attributable to external pressures on CMS rather than to actual subscribers' needs.
    2. That increased services, as previously proposed, be made available to holders of the CMS Preferred Contract.
    3. That the premium charges for the Preferred Contract be reduced to the aged.

c. Phillip M. Cornwell, Councillor from the Hartford County Medical Association, reported that at a special meeting of that Association on April 25, 1962, the membership had voted to approve the proposed Amendment to the CMS Preferred Contract. Jachin B. Davis, Alternate Councilor from the New Haven County Medical Association, reported that his County Association would hold a special meeting to act upon the Amendment on April 28, 1962. There were no other reports of actions taken or planned by the other counties. It was VOTED to table action on the preparation of the report and recommendations of the Council with respect to the proposed Amendment until reports from all eight county associations have been filed.

RESOLUTIONS FROM THE FAIRFIELD COUNTY MEDICAL ASSOCIATION. Four resolutions adopted at the Annual Meeting of the Fairfield Association on April 10, 1962, were discussed. The resolutions read as follows:

1. That the Connecticut State Medical Society study, prepare and issue a broad and basic concept of Third Party Payment relationships
2. That the Connecticut State Medical Society augment its support of the Kerr-Mills Act with continuing communication to its members for a clearer understanding of the Act and its operation
3. That the Connecticut State Medical Society continue its liaison relationship with the Commissioners of Welfare, Finance and Control to develop a realistic approach to and handling of medical care problems
4. That the development of the Relative Value Study for the Connecticut State Medical Society be accelerated.

The Chairman was urged to include in his report to the House of Delegates the nature of these resolutions and to outline what the Society has done, is doing or plans to do in these several regards. On the last (4th) resolution, it was VOTED to direct the Chairman of the Committee on Relative Value Study to proceed to complete the Study forthwith, the format and financial arrangements having previously been approved by the Council.

COMMITTEE ON HOSPITALS. Leopold M. Trifari, Chairman, reported that plans for a "Conference on Licensing Regulations and Qualifications for Personnel in Hospitals" have been completed, and that, among others, representatives of a number of specialty-oriented physicians groups will be invited to participate in the conference. Acting on Dr. Trifari's suggestion, it was VOTED to authorize the

Chairman of the Committee on Hospitals to call a "caucus" of the several groups of physicians to be invited, for the purpose of holding prior discussions on some of the pertinent matters to be considered at the conference.

THE EDITOR OF CONNECTICUT MEDICINE. In anticipation of the election of the Editor of Connecticut Medicine by the House of Delegates on May 2, 1962, it was VOTED that The Editor be considered as an appointee to his office, and that he be accorded an annual honorarium of $2,500.

COMMITTEE ON EMERGENCY MEDICAL SERVICE. On recommendation of this Committee, it was VOTED to adopt a resolution as follows:

"RESOLVED: That the Council endorse the Medical Self-Help Training Program, and suggests that the members of the Society be alerted to cooperate and assist with the Medical Self-Help Training Program; also that the Medical Self-Help Training Program continue to be administered by the State Health Department."

It is understood that, as a consequence of the adoption of this resolution by the Council, the Committee on Emergency Medical Service will proceed to set up a program in cooperation with the Connecticut State Department of Health to implement the distribution of Medical Self-Help Kits and the training of individuals in communities or localities who are not familiar with the program, and it was VOTED to so inform the Chairman of the Committee.

CONNECTICUT ASSOCIATION FOR MENTAL HEALTH. Noting with regret that its action was taken somewhat late to be completely effective, the Council VOTED to endorse a program of the CAMH, titled: "Operation Friendship", under which the attention of the public will be called to the state mental hospitals and the mentally ill, and visiting by physicians and the public at mental institutions during the first week of May will be encouraged.

THE SOCIETY'S AUTOMOBILE. Having been informed that the office car, a 1956 Chevrolet sedan, is deteriorating rapidly, both as to appearance and as to operation, it was VOTED to direct the General Manager to obtain a new replacement under circumstances which he feels to be most suitable. Regarding the garaging of the vehicle and its use by office staff, it was VOTED to place these considerations on the agenda for the next meeting of the Council.

SPECIAL COMMITTEE ON THIRD PARTY PAYMENT POLICY. It was VOTED to adopt a recommendation of this Committee as follows:

"IT IS MOVED: That the Council assign to the Advisory Committee to the Commissioners of Welfare, Finance and Control the additional duty of acting in a liaison capacity with those Commissioners with specific reference to the Medical Assistance to the Aged program, and of reporting periodically to the Committee on Third Party Payments as to the experience of the MAA program regarding the participation of physicians and the payment of monies to physicians under MAA."

COMMITTEE ON THIRD PARTY PAYMENTS. Acting on a series of two recommendations of this Committee, action was taken as follows:

1. It was VOTED to adopt an amended recommendation of the Committee that "The Council accept the second draft of the (Welfare Department's OAA program) payment schedule to physicians, submitted by the Commissioner of Finance and Control. This schedule will also be followed as the out-patient schedule for the MAA (Kerr-Mills) program which became effective on April 15, 1962.
2. It was VOTED to adopt a recommendation of the Committee "that the Medicare Contract be re-negotiated this year along the lines of the previous recommendations of this Committee", and it was further VOTED to inform the Chairman of the Committee on Medicare Plan of this action.

COMMUNICATIONS FROM THE LITCHFIELD COUNTY MEDICAL ASSOCIATION. In separate communications to the Council, the Litchfield County Association's Executive Committee filed protest against several provisions in the new Bylaws of the Society with respect to the Nominating Committee and the additional Associate Councilor allowed those county associations having a membership of over 750, and the fact that no provision is made for the representation of county associations at Council meetings in the event that neither the Councilor nor Associate Councilor (s) is able to attend. It was VOTED to advise the Executive Committee of the Litchfield County Association that amendments to the Bylaws, pertinent to these matters could be introduced at a meeting of the House of Delegates, in order that the desires of the Association could be considered and acted upon by the House at an appropriate time.

RESOLUTON FROM THE NEW HAVEN COUNTY MEDICAL ASSOCIATION. As amended by the Council, it was VOTED to transmit the following Resolution from the New Haven County Association to the House of Delegates on May 2nd, and to recommend its adoption by the House:

"BE IT RESOLVED: That the House of Delegates of the Connecticut State Medical Society reaffirm the historic policies with respect to the pertinent standards of eligibility for appointment and/or reappointment to the medical staffs of General Community Service Hospitals, as follows:

1. Good moral character and high ethical standards as determined by State Medical Examining and Licensing Boards, membership in organized medical associations and/or other authorized medical agencies.
2. Professional competence, as determined by these same agencies.
3. Willingness to participate as a staff member in hospital teaching, research, and community service programs.
4. Willingness to abide by the hospital rules which govern the professional conduct of staff members, and be it further:

RESOLVED: That the House of Delegates of the Connecticut State Medical Society affirm that criteria of eligibility for appointment and/or reappointment to hospital staff membership which deviate significantly from these historic policies, or which might tend to cause the transfer of primary responsibility and loyalty of the physician from his patient to any other party or parties, or which might tend to abrogate the right of a patient to choose his own physician, are unethical because they might disrupt the patient-doctor relationship and are therefore contrary to the public interest.

PURCHASE OF OFFICE EQUIPMENT. It was VOTED to authorize payment from the Russell Fund the sum of approximately $225.00 for the purchase of a Todd Protectograph machine, the use of which is to protect checks issued by the General Manager's office from being altered as to their face value.

ELECTION OF STUDENT MEMBERS. It was VOTED to elect three candidates to Student Membership as follows:

Albert L. Ball, 9 Frisbie Circle, Wolcott-Marquett Univ. Sch. of Med.—Class of 1965

Robert A. Ralph, 1065 Westover Rd., Stamford-Tufts Med. Sch.—Class of 1965

William M. Wexler, 30 Crescent Street, New Haven-Yale Sch. of Med—Clas sof 1964

IMMUNIZATION AGAINST POLIOMYELITIS. Based on recommendations from the Commissioner of Health and an action of the Committee on Public Health, it was VOTED to endorse the proposal of the Department of Health to implement immunization against poliomyelitis, using oral (Sabin) vaccine, on a community-wide basis, and to set up such community-wide immunization programs with the joint cooperation of local health officers and local practitioners of medicine.

DATE OF NEXT MEETING. The President will call the next meeting of the Council "as soon as possible after the Annual Meeting of the House of Delegates, and shall preside until the Council elects its Chairman".

New Members

FAIRFIELD COUNTY

Marcel A. Azar, M.D., Danbury
Stuart J. Danoff, M.D., Stamford
Thomas F. Draper, M.D., Newtown
Ahmed Jamshidi, M.D., Stratford
Carl P. Kremer, Jr., M.D., Stamford
Wallace B. Lebowitz, M.D., Bridgeport
Warren A. Mann, M.D., New Canaan
David C. Morley, M.D., Greenwich
Faith N. Ogden, M.D., Westport
Anatol Petruschow, M.D., Newtown
Pasquale W. Santagata, M.D., Stamford
James B. Sheehan, M.D., Ridgefield
Robert E. Steller, M.D., Stamford
Douglas W. Thomas, M.D., Newtown

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

WANTED: Board qualified internist available for general practice or internal medicine locum tenens August 1962. Please indicate procedure for temporary hospital privilege.

Board certified internist desires association with another internist or group in state of Connecticut.

PLACEMENT OPPORTUNITIES

Wanted young physician for practicing geriatrics, full time hospital employment. Also opportunity for research work.

WANTED—Young woman physician to take over general practice in Fairfield County. Established practice of 33 years.

ANYONE INTERESTED IN THE ABOVE, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGERS'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

1962 MEETINGS

June 25-29—Annual Meeting, American Medical Association, Chicago.

Sept. 19—Hartford Chapter of the American Cancer Society. Time and place of meeting not decided yet.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Oct. 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

SUBJECT:

SELECTIVE SERVICE DEFERMENT OF RESIDENTS AND INTERNS

March 1962

Recent discussions with the National Advisory Committee on the Selection of Physicians, Dentists and Allied Specialists have clarified several issues arising from the recently accelerated program of drafting interns and residents into military service. There is no basic change or new administrative regulation concerning the method of drafting physicians. Selective Service officials, although aware of the educational value of hospital residency programs, are finding it necessary to use the draft mechanism to bring into the armed services the number of physicians now needed.

Defense Department as well as Selective Service officials advise that if each draft-age doctor keeps his local Selective Service board informed of his residency status, and if each hospital administrator keeps fully informed of the military classification of his house officers, the draft problem can be greatly alleviated. Selective Service officials plan to publish specific bulletins to provide doctors and hospitals with all necessary current information about the accelerated draft.

Meanwhile, there are a number of steps which both residency candidates and hospitals could and should take to avoid unnecesary disruption of training programs:

1. Prospective residents will be automatically classified 1-A upon completion of internship. It is essential that the prospective resident notify the proper Area Board about his appointment. The proper Area Board is that which has jurisdiction over the locale of the hospital to which he is appointed. Selective Service officials emphasize that such notification of the Area Board in no way will reflect on the resident's status with his own local board. If the prospective resident waits until he receives a 1-A classification notice from his local board, he has only ten days in which to make an appeal. Failure to appeal within the ten-day period will nullify his right to appeal.

2. Hospitals should ask all candidates for residency positions to furnish their Selective Service numbers, their draft classifications, and the addresses of their local boards. Selective Service officials recommend that the hospital notify the respective local boards of the effective dates of each resident's appointment. This notification is not an appeal, but it informs local boards of facts which may help in making a judgment on a draft candidate's change of status. An appeal from a draft status should be directed to the Area Board. The appointing hospital may, of course, support the prospective resident's appeal by letters to the Area Board.

3. Because the present national emergency is likely to be of extended duration. Selective Service officials urge hospitals to consider carefully the draft status of each prospective resident. It is recommended that, to the extent feasible, a hospital appoint draft-exempt candidates in sufficient proportion so that continuity of its residency program may be maintained.

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Clinical Medicine

Committee On Maternal Mortality And Morbidity

Aspiration Of Vomitus

The patient is a 24-year-old white, married gravida 2, para 1, serology negative, Rh positive woman, admitted at term in active labor.

Previous Pregnancies

One spontaneous term pregnancy; uneventful delivery two years previously. Past history was noncontributory.

Prenatal Course

This was essentially uneventful. She was not seen by her obstetrician until the sixth month of pregnancy, but following this he saw her twice monthly, and weekly through the last month of gestation. Three days prior to admission the blood pressure was normal and there was no albuminuria. There were no complaints. The weight gain was average.

Course In The Hospital

At noon on the day of admission she ate a heavy dinner. Labor started at 3:00 P.M. Two hours later she was admitted to the hospital, at which time the uterine contractions were every 3-5 minutes, lasting approximately 30 seconds. She was given a routine prep and enema. The membranes were intact. The fetal heart was 138 in the left lower quadrant and the cervix was thought to be 1½ cm. dilated. She was given 100 mg. Demerol intramuscularly at this time. She continued to progress satisfactorily and at 7:30 P.M. she was taken to the delivery room with the cervix fully dilated. The membranes had ruptured spontaneously a short time previously. Clear amniotic fluid was noted. Contractions were three minutes apart and of 30 seconds duration.

At 7:58 P.M., 28 minutes after full dilatation, she was given gas, oxygen and ether anesthesia by an anesthesiologist and the obstetrician did a manual rotation from ROT to ROA with the vertex just below the spines. Following this a midforceps delivery was carried out over a right mediolateral episiotomy. The patient was delivered of a living child who had a birth weight of 9 pounds 5 ounces. During the delivery procedure the mother vomited undigested food and became cyanotic. The anesthetist did an endotracheal aspiration under direct laryngoscopy and bronchoscopy without relieving the obstruction. Whenever possible, oxygen was administered and Coramine was finally given. Despite all measures, some thirty minutes after initiation of anesthesia, the patient expired.

Comment

1) Inhalation anesthesia should be avoided when the patient has eaten a full meal within six hours of the onset of labor.

2) Care should be taken to elicit history of ingestion of food and fluids prior to hospital admission.

3) The frequent history of colds might, in certain instances, contraindicate the use of inhalation anesthesia.

4) One wonders why pudendal block would not have been sufficient in this case. Furthermore, the cervix had been fully dilated only 28 minutes. What was the rush for the delivery? Did not this unwarranted hurry indirectly cause the accident? Any anesthetic is a great potential hazard.

Concensus

Either less haste in effecting delivery and hence avoiding deep general anesthesia, or the use of a conduction technique would have avoided the above difficulties.

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County Association Officers

The list of officers of the various county societies is published herewith. This list will not be published each month and members of the Society would do well to take notice of this publication.

Fairfield County

President—Louis Rogal, 31 West Street, Danbury
Vice-President—Francis J. Kalaman, 166 East Avenue, Norwalk
Secretary—Nathaniel Kenigsberg, 881 Lafayette Street, Bridgeport 3
Executive Secretary—Mr. Arnold P. Olson, 285 Golden Hill St., Bridgeport 4
Treasurer—Thomas J. Tarasovic, 49 Dover Street, Bridgeport 10
Councilor—E. Tremain Bradley, 276 West Avenue, South Norwalk
Associate Councilors—Michael A. Dean, 2660 Main Street, Bridgeport 6
Vincent A. Gorman, 320 Hawley Avenue, Bridgeport 6

Hartford County

President—Arnold H. Becker, 300 Main Street, Bristol
Vice-President—Benjamin V. White, 85 Jefferson Street, Hartford 14
Sec.-Treasurer—Charles Polivy, 111 Pearl Street, Hartford 3
Executive Secretary—Mr. Joseph L. Gordon, 230 Scarborough St., Hartford 5
Councilor—Philip M. Cornwell, 85 Jefferson Street, Hartford 14
Associate Councilors—Stevens J. Martin, 114 Woodland Street, Hartford 5
Alfred B. Sundquist, 17 Haynes Street, Manchester

Litchfield County

President—Robert M. Miller, Park Lane, New Milford
Vice-President—Heinz W. Markwald, Main Street, New Hartford
Sec.-Treasurer—Frank Lovallo, Depot Place, Lakeville
Councilor—David A. Grendon, Sharon Hospital, Sharon
Associate Councilor—Frederick C. Gevalt, Sharon Hospital, Sharon

Middlesex County

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Vice-President—Benjamin A. Roccapriore, 109 Broad Street, Middletown
Sec.-Treasurer—Herbert Levine, 195 South Main Street, Middletown
Councilor—Richard F. Grant, 482 Main Street, Cromwell (res.)
Associate Councilor—John R. Egan, Boston Post Road, Old Saybrook

New Haven County

President—Waldo E. Martin, 33 North Street, Milford
Vice-President—Louis C. Backhus, 41 Holmes Avenue, Waterbury 10
Sec.-Treasurer—Hyman A. Levin, 362 Whitney Avenue, New Haven 11
Councillor—Jachin B. Davis, 364 Oak Street, New Haven 11
Associate Councilors—Frank K. Abbot, 163 Grove Street, Waterbury 10
Henry Caplan, 219 West Main Street, Meriden

New London County

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Vice-President—Edward Gipstein, 181 Broad Street, New London
Sec.-Treasurer—Clifford E. Wilson, 7 Clinic Drive, Norwich
Councilor—William J. Murray, Jr., 447 Montauk Ave., New London
Associate Councilor—Nicholas T. Phillips, 93 Sachem Street, Norwich

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Councilor—John F. Hughes, 9 Colton Road, Somers
Associate Councilor—David S. Hastings, RFD #3, Stafford Springs

Windham County

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Chopped Chicken Livers	1 oz.	31	100
Chicken a la King	3 oz.	72	230
French Style Dressing	1 tbsp.	10½	60
Brown Gravy	1 tbsp.	7	21

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Applesauce	½ cup	48	90
Fruit Cocktail	½ cup	44	90
Cherry Pie Filling	1 oz.	20	60
Chocolate Topping	1 tbsp.	8	63
Preserves (Peach, Strawberry)	1 tbsp.	9	55
"Maplette" Syrup	1 tbsp.	9	55
Liquid or Powder Sweetener	(to equal 1 tbsp. of sugar)	0	16

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Report Of The President Of The Woman's Auxiliary To The House Of Delegates Of The Connecticut State Medical Society

As president of the Woman's Auxiliary to the Connecticut State Medical Society, I am privileged to present to you the annual report for the year 1961-62. I wish to express my gratitude to President, Dr. Thomas Feeney, our medical advisors, Dr. William Richards, the county presidents, and the board members for their cooperation. Much time and continuous application was exerted before the following tangible results became perceptible.

I have presided at six board meetings, an organizational meeting, semi-annual meeting and will preside at the annual meeting to be held tomorrow. The president-elect and I have attended the national convention in New York, the national conference in Chicago, the state meetings of Rhode Island and New York as well as four counties. These visits afforded an excellent means of exchange of ideas for communicating well the story of medicine and the auxiliary. It was also my experience to be interviewed on radio to bring the story of the state auxiliary's work to the radio audience for purposes of public relations.

We number 1,164 members with 35 members on the state auxiliary board. All records of meetings, correspondence and national contacts have been recorded and an audited financial report as well as a proposed budget for the coming year is on record.

At the request of the public relations department of the Connecticut State Medical Society, we have displayed exhibits and distributed health literature at nine country fairs in six counties of the state. In addition, volunteers have assisted at the Preschool Vision Screening Clinic, Glaucoma Detection Clinic, weekly Meals on Wheels Program, Polio Clinic and the Red Cross Blood Bank. On matters of surplus medical and surgical supplies, our chairman has met with Dr. Foote, State Health Commissioner and Dr. Hart to discuss the present status of these supplies with suggestions for possible future procedures. Medical journals and literature have been picked up periodically and delivered to the Darien Book Aid Plan. In the area of Civil Defense, kits have been distributed, shelter food displayed, films shown on fall-out and home preparedness, as well as a listing of volunteers in case of an emergency.

At a combined national and regional meeting for the American Medical Education and Research Foundation, we were urged to give top priority to collecting funds for medical schools. Our counties have had various fund raising projects to meet this goal. We are proud to report a total to date of $2,871.50. Awards are given for the greatest per capita contribution and to the county with the largest total amount contributed.

We have accented service in our contribution for Mental Health by visits to our state hospitals. Patients have been transported to the Shrine Circus, gifts donated and wrapped during the holiday season, magazines collected and teas held for the patients.

Health career programs with movies and tours have been planned throughout the state with 152 high school seniors reporting a definite interest in such a career. The book "Financial Aids for Connecticut's Students" lists two of our county auxiliaries. Scholarship assistance have been given to four medical students and eleven to nursing students and allied fields, totaling $5,970,00. It has been recommended from the national auxiliary that in the future, priority be given to medical students and medical schools since we are a medical group.

Priority was also given in the realm of legislation to emphasize the ramifications in the King-Anderson Bill versus the Kerr-Mills Bill. Letters have been sent to our Congressmen and Senators. All seven counties have participated in "Operation Coffee Cup" which was the playing of the Ronald Regan record, followed by discussion. Requests for this program have come from many groups such as the Farm Bureau, Four H, Senior Citizens Club, Church groups, Board of Education and League of Women Voters.

COMPAC, (the Connecticut Medical Political Actions Committee) our branch of AMPAC, has been organized with our legislative chairmen serving as members of the board of directors.

Four issues of the Connecticut Quarterly have been distributed to all members in the state which reported on pertinent information on the local as well as national level. Also, a page in CONNECTICUT MEDICINE has carried reports of our children. In addition, 358 members subscribed to the National Bulletin which is the official publication of the National Auxiliary. We advise that an informed member serves her community best.

This year our constitution and bylaws were amended and reprinted to be in keeping with our progress but still in the framework of tradition. Also, with the approval of the Connecticut State Medical Society, the Connecticut auxiliary will be represented at all national conventions and seminars designated by our board.

Our delegate to the Connecticut Advisory School Health Council kept us informed of the discussions concerning the responsibility of the public school for meeting psychological and physical handicaps to learning. One report published in our Quarterly was so well acclaimed by the Council that copies of it were mailed to the other thirty representatives to the Council asking them to emulate it for their respective organizations. We were also represented at the Governor's Conference on Safety at Yale University which emphasized the need of support and understanding on matters of public and traffic safety.

In conclusion, I wish to state that there has been a great need for public relations. It has been our aim to serve with leadership, not authority, to be cognizant of that which is beneficial to most concerned, to stand with the Connecticut State Medical Society and the National Auxiliary with dedication and an awareness of our potentialities to carry out the national theme for this year, which is "Speak Your Belief in Deeds."

Respectfully submitted,
MRS. GEORGE J. ROSENBAUM,
President.

CONNECTICUT PHYSICIANS' ART SHOW

The 1962 exhibition of the Connecticut Physicians' Art Association was held recently in conjunction with the Annual Meeting of the Connecticut State Medical Society at the Statler-Hilton Hotel in Hartford.

Oils, pastels, water colors as well as sculpture, ceramics and photography were included in the entries by members of the State Medical Society and their families.

The judges were Irving Katzenstein, Hartford, members of the Connecticut Water Color Society and the Connecticut Academy of Fine Arts, Gail W. Martin, instructor of painting and history of art at the Hartford Art School, University of Hartford, and Mrs. Ethel Stauffer, painter and teacher, president of the New Haven Paint and Clay Club and member of the Connecticut Academy of Fine Arts.

The award winners are announced by Mrs. Orvan W. Hess, Vice President of the Connecticut Physicians' Art Association.

Professional
Oil

1st—W. W. Wright, M.D., West Hartford, "Spanish Church".
2nd—Edith Geiger, Woodbridge, "Oyster Stakes".
3rd—Margot Rosenthal, West Hartford, "After the Storm".
Hon. Men. W. W. Wright, M.D., West Hartford, "Voodoo".

Amateur
Oil

1st—Andrew Turano, M.D., Middletown, "Harbor Window".
2nd—Nicholas Giosa, M.D., Hartford, "Adolescence".
3rd—Steven P. Magyar, M.D., New Haven, "Ester".
Hon. Men. Saul Rosenberg, M.D., Bridgeport, "Job".
Mrs. John A. Vecchiolla, Hartford, "Golden Days".

Children
Oil

1st—Anna Hughes, "Light Fantasy".
2nd—Barbara Anderson, Windham Center, "By the Pond".
3rd—Cythia Green, Hamden, "Desert with Cactus".

Watercolor

1st—Lloyd N. Hockmuth, M.D., West Simsbury, "Winter Scene".
2nd—Isabel Harris, Thomaston, "Ice Storm".

Sculpture

1st—Ruth W. Lidz, M.D., Woodbridge, "Siciliani".
2nd—John A. Bacciarelli, West Hartford, "Mother and Daughters".
3rd—Mrs. Lewis Chester, West Hartford, "Lantern".

Ceramics

1st—Gerald Greene, M.D., West Hartford, "Compotes".

Black and White

1st—Sidney Ann Griffin, West Hartford, "The Twisters".
2nd—Richard Bernstein, West Hartford.
3rd—E. E. Williams, M.D., Naugatuck, "Old One".

Photography

1st—Karin Rosenthal, West Hartford, "Cave".
2nd—James F. Jones, M.D., Danielson, "Green Hollow Road".

Around The State

New London County

Dr. Jacob Wachtel formerly from Norwich, now Assistant Professor of Anesthesiology at The University of Alabama Medical Center in Birmingham, Alabama, has just returned from the Bahamas where he presented the following papers: "Amnalaegia For General And Heart Surgery" and "What's New In The Operating Room Suites Including Recovery And Special Care Units."

Dr. Wachtel is invited to Vienna in the fall to be the moderator on the panel "Old Age And Anesthesia". He plans to speak in Japan next year at the Sixteenth General Assembly Of The Japan Medical Congress on "Amnalgesia For Heart Surgery".

Naugatuck Valley Medical Society

A large delegation of members of the Naugatuck Valley Medical Society attended the first annual educational seminar on geriatrics and rehabilitation held on May 10th in Shelton.

This was sponsored by the Hewitt Memorial Hospital in Shelton, as their initial effort in community-wide education in the matter of medical care of the elderly.

The Hewitt Hospital is the only convalescent hospital in the State of Connecticut that has been approved by the American Hospital Association Committee on convalescent hospitals.

The main speaker of the evening was Jerome S. Tobis, professor of physical medicine and rehabilitation at New York University Medical School.

A research seminar on polio vaccine production, was attended by a delegation of Naugatuck Valley Medical Society doctors and their wives, in New York, in early May. This seminar was sponsored by members of the pharmaceutical industry, and offered those attending an opportunity to combine social and educational events in the one package.

Due to prior arrangements, excellent local coverage of the Connecticut State Medical Society's annual meeting in Hartford was obtained through the local press and the local radio station.

In addition, by special arrangement, a tape recording of the speech by Dr. Edward Annis delivered at the Chamber of Commerce meeting in downtown Hartford on May 2, was rebroadcast by the local radio station. For the benefit of valley citizens this rebroadcast was presented just prior to President Kennedy's much publicized Madison Square Garden rally on the King-Anderson Bill.

E. L. Rochfort Memorial Book Fund

The late Miss Bertha M. Rochfort of East Haven has bequeathed $1,000 to the Yale Medical Library to establish an endowed book fund in memory of her brother, Edward Lewis Rochfort. Dr. Rochfort graduated from the School of Medicine in the Class of 1912. Income from the fund will be used to purchase books, each of which will be identified by a specially designed bookplate.

The Rochford Fund is the Medical Library's twenty-fifth endowed book fund. These funds are vital for the purchasing program of the Library which is most grateful for this new beneficence.

Doctor's Office

Claude E. Forkner, Jr., M.D., announces the opening of an office in association with Allan M. Ross, M.D., for the practice of internal medicine at 1003 Post Road, Darien.

Marvin Levenstein, M.D., announces the opening of a second office for the general practice of medicine and surgery at 1942 State Street, Hamden. He will continue to maintain his office at 1890 Whitney Avenue, Hamden.

John W. Rhinehart, M.D., announces the opening of an office for the practice of psychiatry at 33 Main Street, Newtown.

Daniel L. Saraczynski, M.D., announces the opening of an office for the practice of surgery and gynecology at 370 Gurdon Street, Bridgeport.

Mario Songco, M.D., announces the opening of an office for the practice of psychiatry at 16 Franklin Street, Norwich.

Robert Steller, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 95 Morgan Street, Stamford

Robert Turfboer, M.D., announces the opening of an office for the practice of industrial psychiatry at Barberry Lane, Woodbridge.

In Memoriam

Humpage, Norbert W. — Torrington; ear, eye, nose, and throat specialist in Torrington since 1946; interned at St. Francis Hospital, Hartford; served in the Medical Corps of the U. S. Air Force from 1942 to 1946; Fellow of the American College of Surgeons and of the International College of Surgeons; died suddenly at his home, April 18, at the age of 50.

NEW BOOKS IN REVIEW

MODERN OCCUPATIONAL MEDICINE, 2nd Edition, by A. J. Fleming, M.D., C. A. D'Alonzo, M.D., and J. A. Zapp, Ph.D. Lea & Febiger Co., Philadelphia, Pa., 1960, 553 pp., $12.00.

Reviewed by LOUIS H. NAHUM

"Preventives of Evil are far better than remedies; cheaper and easier of application and surer in result." —Tryon Edwards.

This book represents the combined experience of a group of twenty-two authors who have spent many years specializing in industrial medical practice. All are employed full time by the E. I. Du Pont De Nemours & Company. All have had experience and training in this company varying from five to thirty-nine years. Sixteen of them work in the medical department. The others are closely associated with the medical department. All are acknowledged experts in their respective fields.

The book is divided into eight sections with a total of thirty-five chapters. Section one is devoted to organization and furnishes knowledge on evaluation of medical services in industry, a history of industrial medicine administration, medical history, and physical examination, and medical records. Section two is devoted to industrial preventive medicine with four chapters. Section three is devoted to the physical environment, work, stress and occupational health. There are five chapters in this section, an excellent one on physiology of muscular exercise. Section four with nine chapters covers "services allied to occupational medicine" including a very good one on medicolegal aspects of occupational medicine. Section five deals in four chapters on psychiatry. There is covered practical applications of psychiatry to industry. Section six deals with toxicology in six chapters covering chemical health hazards, insecticides, environmental hazards, lead and occupational chest diseases. Section seven considers the problem of acute poisoning. The final section is on biostatistics in occupational medicine. The book ends with an extended index of thirty-two pages.

This is a valuable volume because it presents a more complete and rounded development of the subject than some others which have previously appeared. It is not entirely limited to occupational disease, since there is a psychiatric section and one on biostatistics. The physiology in it is good and the preventive aspects are especially to be commended. It is a small book for such a large subject and consequently is much abbreviated in many areas, but the treatment of the subjects undertaken is concise, authoritative and reliable.

VISUAL AIDS IN CARDIOLOGIC DIAGNOSIS AND TREATMENT. Edited by Arthur M. Master, M.D. and Ephraim Donoso, M.D., Grune & Stratton, New York, New York, 1960, 209 pp., $10.00.

Reviewed by LOUIS H. NAHUM

The sixteen papers in this small volume are based upon the proceedings during the Silver Anniversary Meeting of the American College of Chest Physicians held in Atlantci City, New Jersey, June 6, 1959, and presented by a group from the Mount Sinai Hospital in New York. However, the authors enlarged upon the original presentation in the present book. Also two additional topics not discussed at the Symposium are added one on angiocardiography and a second on selective angiocardiography and aortography. These two chapters however are not from the Mount Sinai group but from the New York Hospital and the National Heart Institute.

The title of the book is Visual Aids In Cardiologic Diagnosis and Treatment but actually it contains many other areas of cardiovascular surgery, such as pathologic anatomy. The Anesthesiologist and Cardiac Surgery, Rationale of Surgical Conduct in closed and open heart procedures; Postoperative Course in Cardiac Surgery; Management of Surgical Problems and Postoperative Course in Cardiac Surgery; Management of Medical Problems.

The first chapter by the Editors is called "Machine and Physician" in heart disease. In it is a panoramic view of all methods available for accurate cardiac diagnosis somewhat uncritically presented. For example, almost two pages out of sixteen are devoted to special vectorcardiography although this technique is neither theoretically sound nor practically valuable by contrast electrocardiography is given one-quarter pages and the Master "2-step" test is of course, prominently mentioned. However, some of the misplaced emphasis is corrected later in the volume by authors dealing with the particular phase of diagnosis and therapy. There is an excellent bibliography at the end of it with sixty-five references to the basic papers.

A curious development is that Arthur Grishman wrote the chapter on Auscultation and Phonocardiography while Dock covers Vectorcardiography. The chapter on Diagnostic Application of the Electrocardiogram by Lasser is well done but it is doubtful whether introducing a non electrical concept live "overload" adds anything to the meaning of the electrocardiographic patterns since one is a mechanical concept while the other is a purely electrical one. This type of blurred thinking does not improve the value of either concept.

The highly technical chapters such as Apparatus and Techniques in Heart Catheterization and newer methods in localization of shunts are too technical for the physician and probably too elementary for the cardiac surgeon.

This reader wonders to which audience this type of book can be addressed. The chapters are short and some are overly abbreviated. Much has to be taken for granted by the physician who cannot use the techniques while to the cardiac surgeon the material must be overly simple. It is probably right to say as the authors do "This is not a textbook. No claim is made for completeness. The material and bibliography are concerned with the highlights of the problem. Our purpose is solely to alert and stimulate the interest of the practicing doctor." This book may succeed in alerting the practicing doctor, but how much it may stimulate him remains to be seen.

There are many areas in which this reviewer would question concepts presented. Vectorcardiography has already been mentioned. On page 184 induced cardiac arrest is proposed by the use of "potassium citrate" "acetylcholine" or "other solutions" into the heart! Few physiologists or cardiac surgeons would have the temerity to use these methods for thirty to sixty minutes. On page 204 these complications of open heart surgery are given, but hepatocellular damage from anoxia is not mentioned.

The printing of this book is excellent, the editing with the use of black caps in sub-sections is very helpful to the reader. There are occasional misspelled words which could be corrected if any second edition would ever be required. The bibliography after each chapter varies from two references to the post-operative course in cardiac surgery by Baronofsky both to his own work, to a more scholarly and modest attitude towards other workers in the field in other chapters. There is an adequate six page index at the end.

OCCUPATIONAL DISEASES AND INDUSTRIAL MEDICINE, by Rutherford T. Johnstone and Seward E. Miller, W. B. Saunders Co., Philadelphia, 1960, 482 pp., $12.00.

Reviewed by LOUIS H. NAHUM

The authors are leaders in their field. The senior is consultant in industrial medicine and clinical professor of preventive medicine and public health at the University of California at Los Angeles. The junior author is director of the Institute of Industrial Health at the University of Michigan, Ann Arbor. The practitioners of general medicine are now caring for the majority of industrial workers. Then there is in the home in everyday use a great variety of chemicals from detergents and metal polishes to pesticides. This increased exposure of the public to toxic materials has made it mandatory upon almost all physicians to know something about the practice of industrial medicine. Aside from this need occupational medicine is an established specialty with resident training being initiated in many centers of learning. There is certainly a need which is ever growing for a textbook to fulfill the requirements of practitioners, students and teachers in industrial medicine. It is for such people that this book is written.

Part I, contains information in seven chapters on diagnosis of occupational disease, while Part II, presents the clinical approach. This is expertly combined with toxicologic aspects in which the senior author is expert and clinical and pathologic experience in which the junior author contributes his special knowledge. The result is a rather complete coverage of occupational disease entities in their most important aspects.

Each part is preceded by an introduction. That of part I portrays well the opportunities, needs and characteristics of the practice of industrial medicine. This is followed in the suceeeding chapters with a portrayal of the scope, and elements of industrial medicine, the duties of the occupational health personnel, industrial medicine and insurance and many adaptations to industrial life.

The introduction to Part II provides a good basis for a better understanding of the occupational diseases. There is a description of how inhaled gases accumulate in the body and how they are eliminated. In addition there can be found some pertinent chemistry and toxicology. In the clinical chapters that follow, not only chemical intoxications are covered but also occupational infections, cancer, and diseases from exposure to physical forces in the work environment are portrayed. Each chapter dealing with a special poison or toxic agent contains a section on Prevention in which industrial hygiene principles have been incorporated. The material is definitely enhanced by numerous good figures which are labelled by the number of the chapter in which they are found. There are some excellent case histories with thorough clinical and post mortem data. Following prevention is a small section on treatment of each occupational disease.

The physician will often be told by the worker the name of the material or process that he has been exposed to. Since these are industrial terms and not scientific or chemical the physician requires an extended glossary of the more common terms used in industry. This is thoroughly furnished in this fine textbook.

It is difficult to see how a general physician can deal with workers in industry or with poisoning in the home or on the farm without some form of guidance by experts. This book will handsomely meet his needs in this regard. There is little doubt that as processes and chemicals increase, the average person grows increasingly ignorant of them and their effects. He need not be if he has this book to refer to. It is a must for every active practitioner.

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Many of the paintings for the traveling show will be selected from the 25th annual art exhibition of the APAA at the convention of the American Medical Association in Chicago, June 24-28.

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Special Notices

Connecticut Chapter, American Academy Of Pediatrics Annual Meeting

Thursday, June 14, 1962

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Auditorium

Section Chairman, Dr. Frank E. Roth
Program Chairman, Dr. Jean Wells

Scientific Program	3:00—5:30 P.M.
Social Hour	5:30—6:30 P.M.
Dinner	6:30—7:30 P.M.

Report on Governor's Committee on Human Services
Mrs. William Haas, Jr.
Member of Committee.

Scientific Program

3:00—3:10 TEAM PHILOSOPHY IN CHILD CARE. Burr H. Curtis, M.D., Surgeon in Chief.

3:10—3:40 EXPERIENCE WITH A CLASS FOR PERCEPTUALLY HANDICAPPED CHILDREN. Miss M. Janet Olson, Special Teacher; Ross R. Thomas, Ph.D., Consulting Psychologist.

3:40—4:10 SPINA BIFIDA: A FOLLOW-UP OF NINETY CASES. Burr H. Curtis, M.D., Orthopaedist; Charles E. Jacobson, M.D., Urologist (Discusser).

4:10—4:40 NEWINGTON EXPERIENCE WITH THE JUVENILE AMPUTEE. Earl E. VanDerwerker, Jr., M.D., Orthopaedist; John C. Allen, M.D., Physiatrist.

4:40—5:20—FILM—THE UNMASKED PALATAL CLEFT. Leonard K. Smith, M.D., Plastic Surgeon; Jay W. Lerman, Ph.D., Speech Pathologist (Discusser).

5:20—5:30 SUMMATION. Jean Wells, M.D., Chief, Pediatric Division.

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The Department of Otolaryngology, University of Illinois College of Medicine, will conduct a postgraduate course in Laryngology and Bronchoesophagology from September 24 through October 6, 1962, under the direction of Paul H. Holinger, M.D.

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Interested registrants will please write directly to the Department of Otolaryngology, University of Illinois College of Medicine, 1853 West Polk Street, Chicago 12, Illinois.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 JULY, 1962 NUMBER 7

Mark Solomkin and Gerald Zimmerman **The Use Of Intravenous Oxytoxic Infusions In Caesarean Sections**

Mark Josel **Primary Sarcoidosis Of The Orbit**

Arthur A. Sasahara and Nelson A. Gelfman **Fatal Vitamin D Intoxication Masked by Multiple Sclerosis**

C. L. Hopper and R. W. Painter **Spontaneous Rupture Of The Esophagus**

Morris A. Wessel and Frederic M. Blodgett **Edith B. Jackson, M.D. and Yale Pediatrics**

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a look at the literature

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References: (1) Minchew, B. H., & Cluff, L. E.: *J. Chron. Dis.* **13**:354, 1961. (2) Wallmark, G., & Finland, M.: *Am. J. M. Sc.* **242**:279, 1961. (3) Wallmark, G., & Finland, M.: *J.A.M.A.* **175**:886, 1961. (4) Welch, H., in Welch, H., & Finland, M.: Antibiotic Therapy for Staphylococcal Diseases, New York, Medical Encyclopedia, Inc., 1959, p. 14. (5) Hodgman, J. E.: *Pediat. Clin. North America* **8**:1027, 1961. (6) Bauer, A. W.; Perry, D. M., & Kirby, W. M. M.: *J.A.M.A.* **173**:475, 1960. (7) Petersdorf, R. G., *et al.*: *Arch. Int. Med.* **105**:398, 1960. (8) Goodier, T. E. W., & Parry, W. R.: *Lancet* **1**:356, 1959.

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JULY
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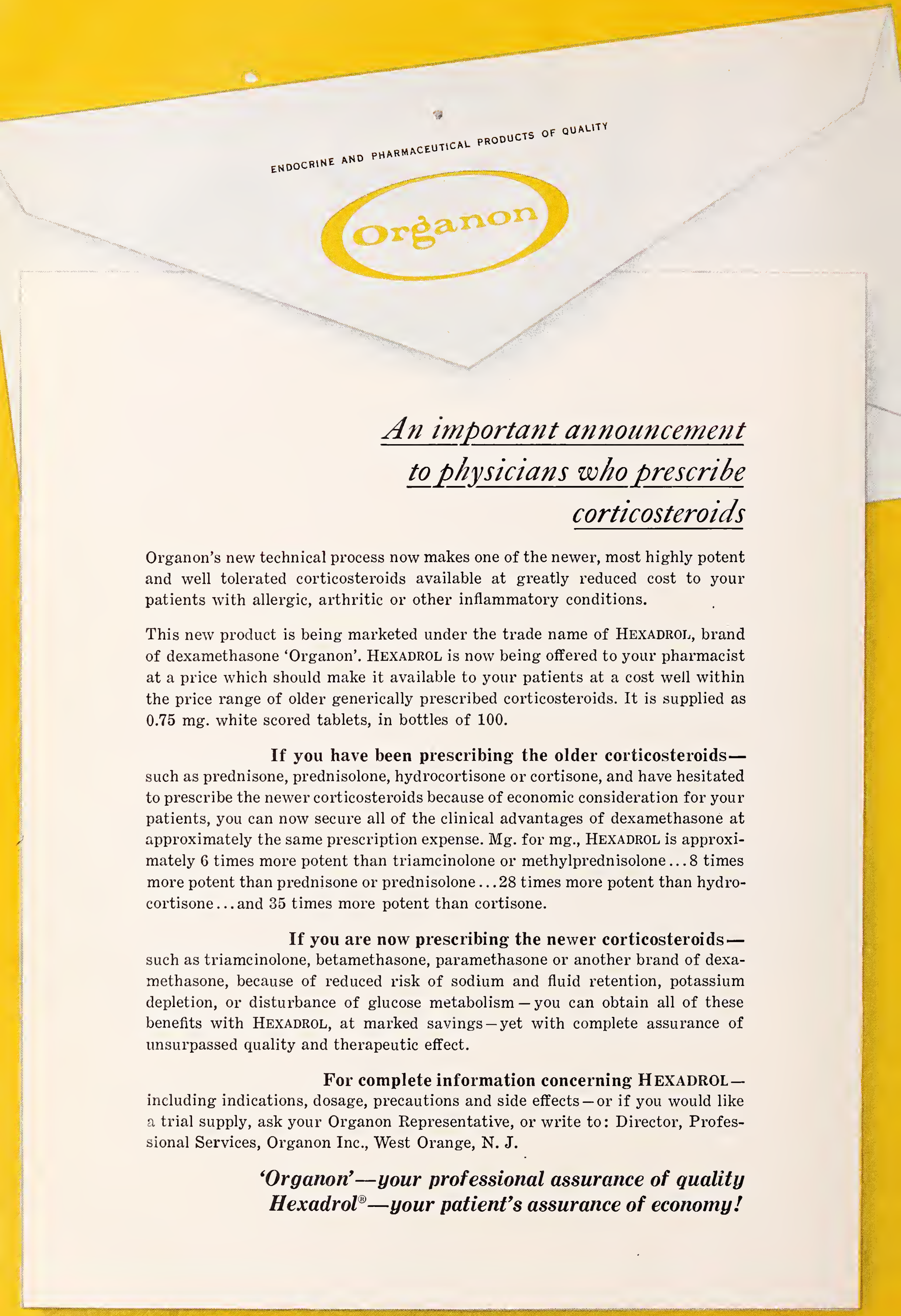
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The Use Of Intravenous Oxytoxic Infusions In Caesarean Sections

MARK SOLOMKIN, M.D.
GERALD ZIMMERMAN, M.D.
Hartford

THE increased blood loss associated with Caesarean Section is well known and has been amply demonstrated by many simple and complicated techniques. Procedures to limit this loss have met with indifferent success. In recent years the success of intravenous oxytoxic[1] infusions to initiate labor or stimulate ineffective uterine contractions, and to control blood loss from the "boggy" post-partum uterus has been fully proven. It occurred to us that the use of an intravenous oxytoxic infusion at Caesarean Section might be a useful technique to control blood loss associated with Caesarean Sections. Therefore we began to use an oxytoxic infusion with Caesarean Section and the results were so gratifying that a "double-blind" study[2] was instituted.

In our technique of Caesarean Section all patients have an intravenous infusion started before laparotomy. It is then a simple matter to cut in the oxytoxic infusion at any time. The infusion used was 0.5 cc of either syntocinon, pitocin,[3] or control (water) in 500 cc of 5 per cent glucose in water. We chose to start the oxytoxic infusion with the delivery of the shoulders,[4] and it was run at 30-60 drops per minute. Whole blood was started in those cases where bleeding or oozing seemed excessive or persistent. Hematocrits taken prior to surgery and repeated two days after surgery were used to indicate blood changes. The time of surgery was compared.

This is obviously a small series. Nevertheless, certain findings are so apparent that their significance is obvious even in a small series. The parity of the patient, type of anaesthetic agent used, whether or not the patient was in labor, did not appear to influence our findings too much. The average pre-operative hematocrit of 38.7 per cent in the controls and 37.5 per cent in those receiving the oxytoxic infusion is not statistically significant in this small series. The average post-operative hematocrits are, as expected, somewhat higher, 39.1 per cent in the control group, some of whom received blood, than the 37.5 per cent in the oxytoxic group, none of whom received blood. We feel that the interesting findings were that it was felt necessary at surgery to give whole blood to 50 per cent of the patients in the control group whereas no blood was thought necessary in the oxytoxic group. Another finding of note was the difference in operating time. In the control group the average time of surgery being 63.5 minutes as compared with 44 minutes in the oxytoxic group.

The indicated decrease in blood loss is most important in that it saved the patient from exposure to the allergic and infectious complications of whole blood transfusion. Further surgical benefits accrued to the patient in that the resultant drier field permitted faster surgery which meant that the peritoneal cavity was open for a shorter time and that the amount of anaesthesia need was decreased.

---

[1] Syntocinon or pitocin.

[2] The material used in this study was graciously supplied by Dr. Sidney Gimpel of the Sandoz Company, Hanover, New Jersey.

[3] In previous study (unpublished) we found no marked difference in the oxytoxic properties of syntocinon or pitocin.

[4] One exception in the case of V.B. (oxytoxic group) the surgery was done as an emergency and the infusion was actually not started until the uterine repair had been started.

Summary

In a small series of Caesarean Sections the use of an intravenous oxytoxic infusion appeared to decrease significantly the amount of blood loss at surgery. From this in turn, important benefits accrued to the patient as a result of the decreased need for blood transfusion and the faster surgery possible in the drier field.

TABLE I

No Oxytoxic

CAESAREAN PRIMARY	SECTION REPEAT	ANAESTHESIA	IN LABOR	PRE-OP HEMATOCRIT	POST-OP HEMATOCRIT	CC OF WHOLE BLOOD USED	TIME OF OPERATION
J.C.		Spinal	Yes	43	40	500	70 min.
A.L.		Spinal	Yes	39	43	0	45 min.
G.H.		Spinal	Yes	34	38	500	50 min.
	R.F.	General	No	33	35	500	80 min.
	D.T.	General	No	35	37	500	60 min.
	H.W.	Spinal	No	38	43	0	50 min.
	K.V.	Spinal	Yes	36	34	500	80 min.
	R.N.	Spinal	No	44	34	0	60 min.
	D.P.	Spinal	No	41	42	0	80 min.
	J.J.	General	Yes	44	45	0	60 min.
Average		7 Spinal 3 General		38.7	39.1	1 Unit in 50% of Cases	63.5 min.

With Oxytoxic Infusion

CAESAREAN PRIMARY	SECTION REPEAT	ANAESTHESIA	IN LABOR	PRE-OP HEMATOCRIT	POST-OP HEMATOCRIT	CC OF WHOLE BLOOD USED	TIME OF OPERATION
V.B.		General	Yes	39	35	0	40 min.
M.L.		General	Yes	39	37	0	33 min.
M.F.		Spinal	No	43	39	0	40 min.
J.S.		Spinal	Yes	34	37	0	40 min.
	G.-M.H.	Spinal	No	39	39	0	45 min.
	I.A.	General	Yes	33	30	0	65 min.
	N.P.	Spinal	No	37	38	0	35 min.
	S.D.	Spinal	No	41	45	0	55 min.
Average		7 Spinal 3 General		37.5	37.5	0	44 min.

Primary Sarcoidosis Of The Orbit

Report Of A Case

Mark Josel, m.d.
Hartford

Only nine cases of orbital sarcoidosis have been reported since 1939 when King[1] presented what he considered to be the first reported case of this disease. Kaplan[2] in 1948 described a case of orbital sarcoidosis but this was associated with other systemic manifestations of this disease as was the one reported by Bodian and Lasky[3] in 1950. Benedict[4] in 1949 reviewed more than 1,000 cases of primary orbital tumors encountered at the Mayo Clinic and found and reported only 2 cases of orbital sarcoid. Knapp and Knoll[5] in 1949 also reported a case which like one of Benedict's and the one being presented, showed no systemic manifestations of the disease. Rider and Dodson[6] in 1950 presented a case proven after enucleation. In 1952 Alexander[7] presented a case of orbital sarcoid in a 70 year old male with proptosis and in 1956 Stein and Henderson[8] reported a case presenting a palpable mass in the left orbit and proptosis.

Another case of primary orbital sarcoidosis without any evidence of systemic manifestations will be presented.

A 36 year old Negro woman entered Bellevue Hospital on October 16, 1956 because of a palpable mass beneath the left lower lid of three weeks duration and with progressive impairment of vision of the left eye of about seven weeks duration. The patient was born in the British West Indies but had been living in New York City for the past 15 years. Prior to the onset of her symptoms she had been in excellent health requiring medical aid only for delivery of a full term pregnancy five years ago, and for removal of a left ovarian cyst ten years ago. At the time of the birth of her only child she was told of a "mild" hypertension but had never known of any pre-existing renal or cardiovascular disease, and had never experienced any symptoms of hypertension. There was no familial incidence of congenital, infectious or metabolic diseases.

On physical examination, temperature orally was 98F., pulse 90 min., blood pressure 160/100, weight 127 lbs. and height 62 inches. The patient was a well developed, well nourished Negress not appearing acutely or chronically ill. There was noted a small, round mass approximately 2 x 2 cm. beneath the skin of the left lower lid near the inner canthus. On palpation this was firm, rubbery and freely movable, not attached to overlying skin or underlying bone. Pressure directly over the mass produced slight proptosis of the left globe. However, aside from this there was no ptosis, proptosis or displacement of the left globe. No bruit was heard over this mass. Examination of the right eye revealed no abnormalities of the globe or adenexae. The vision in the right eye was 20/20, but in the left visual acuity was reduced to 20/100. There were no abnormalities of the conjunctivae or sclerae. Extraocular movements were bilaterally normal and near vision was not impaired. Exophthalmometry revealed no exophthalmous except when pressure was exerted directly on the mass. Ophthalmoscopic examination of the right eye revealed no abnormalities. Examination of the left eye revealed 3 diopters papilledema

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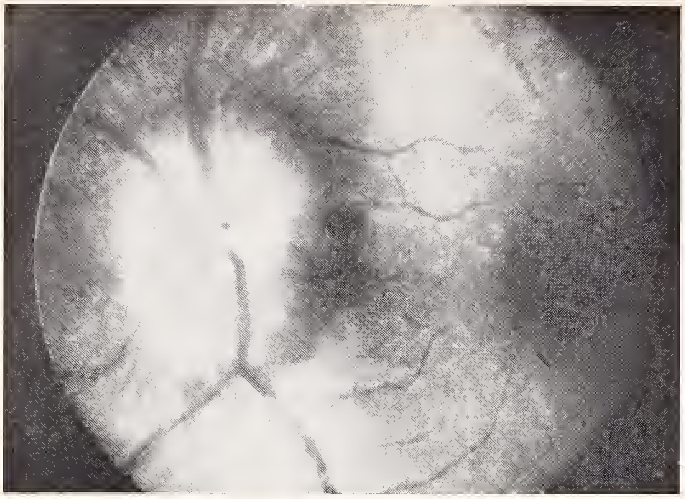

FIGURE I
Photograph of the retina taken on November 26, 1956, prior to the institution of therapy. Note papilledema and engorged retinal vessels.

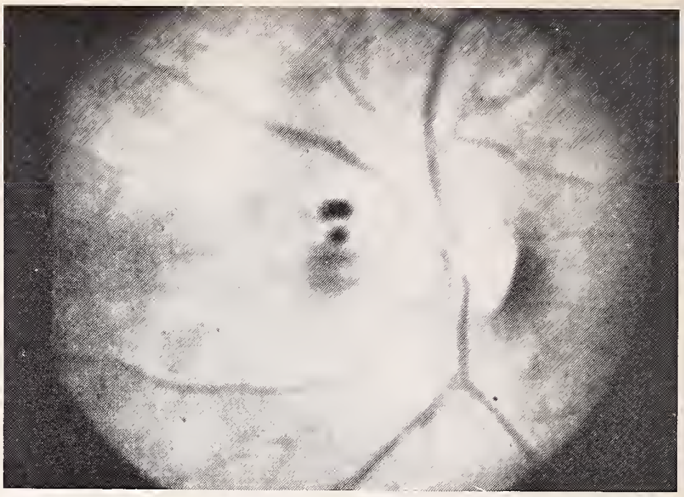

FIGURE II
Photograph of the retina taken on January 2, 1957 38 days after institution of steroid therapy. Note regression of papilledema with minimal edema still present along the nasal border of the disc.

with minimal venous dilation. (Fig. 1.) The arterioles and macular were normal in appearance. No exudates or hemorrhages were seen. Visual Field examination showed an increase of the blind spot on the left.

The nasopharynx was normal in appearance. No cervical, axillary, epitrochlear or appreciable inguinal adenopathy was noted. The lungs were clear to palpation, percussion and auscultation. The heart was not grossly enlarged. The tones were of good quality, and the rhythm, regular sinus. No abnormalities on examination of the abdomen, pelvic organs, rectum, extremities, or nervous system were noted.

At the time of admission urinalysis was completely within the range of normal limits and the serological test for syphillis was negative. The hemogram showed a hemoglobin of 14 grams, with a white blood cell count of 5,000 and a normal differential. Blood urea nitrogen was 14 mgm% and a fasting blood sugar was 90 mgm%. X-rays of the orbit showed the left optic canal slightly larger than the right with no other abnormality. The left optic foramen measured 6 cm. in diameter, the right 4 cm. No significance could be placed on this difference. X-rays of the chest showed slight prominence of both hilar regions with no definite evidence of nodularity in the hilar regions or pulmonary fields.

On October 29, 1956 an orbitotomy was performed by means of a 35mm incision through the lower lid along the floor of the orbit. A poorly encapsulated yellow-gray mass was seen lying on the medial aspect of the orbit floor and dissected readily with blunt dissection. The specimen obtained was a 1.5 cm. fleshy mass poorly encapsulated.

Microscopic examination revealed a non-caseating granulomatous lesion, probably Boecks Sarcoid.

Roentgenograms of the hands, feet, and skull were negative for sarcoid disease. Total blood protein was 5.8 grams with a normal albumin/globulin ratio. Serum electrophoresis was not done at this time. Serum calcium was 10.3 mgm %, and phosphorous 4.3 mgm %. Alkaline Phosphatase was 10 K.A. units. Tuberculin skin tests with purified protein derivative, first and second strengths, were negative. Spinal fluid examination showed no abnormalities. Repeat blood smears and hemogram remained within normal values and the erythrocyte sedimentation was never greater than 15 mm/hr.

Steroid therapy was instituted on November 26, 1956 consisting of 300 mgm of cortisone daily together with 12 grams of para amino salicylic acid and 300 mgm of isoniazid daily. On December 2, 1956, seven days after the institution of therapy she noted subjective improvement in the vision of her left eye and V OS was now noted to be 20/30. Some clearing of the papilledema was seen as the temporal portion of the disc margin was more clearly outlined. At this time a diagnostic bone marrow aspiration was performed and was reported as somewhat hypocellular but not abnormal. Her visual acuity and papilledema continued to improve steadily and on December 10, 1956, 15 days after the institution of therapy she was discharged from the hospital to be followed in the out-patient department. At this time she was on 200 mgm of cortisone daily along with the PAS and INH.

Nine days after discharge she was readmitted to the ward complaining of weakness, polyuria and polydypsea. Physical examination revealed marked diminution of the papilledema but was otherwise unchanged. A fasting blood sugar at this time showed 400 mgm % of glucose and a 24 hour urine specimen contained 200 grams of glucose. A diagnosis of steroid diabetes was made and prompt measures were undertaken to treat this new complication. Since her papilledema was almost completely resolved and visual acuity had approached normal limits it was decided to drastically reduce the steroid therapy to alleviate the diabetes. Over the next twelve days the cortisone was reduced from 200 mgm daily to 62.5 mgm daily and the patient maintained on a 1800 calorie diabetic diet containing 100 grams of carbohydrate, 120 grams of protein and 100 grams of fat. Insulin was also administered to help control the steroid diabetes, but only after the complete discontinuation of the cortisone was her diabetes able to be controlled on moderate dietary restriction alone without the use of insulin. On January 31, 1957, 66 days after the institution of cortisone this drug was discontinued completely and a few days later, completely asymptomatic with V OS 20/20-2 and no evidence of papilledema, she was discharged to the out-patient department. At this time her fasting blood sugar was 110 mgm % and she had only 15 grams of glucose in a 24 hour urine specimen. During this second admission sputum cultures for acid fast bacilli were negative. Other laboratory data were not significant. About one month after this second discharge the PAS and INH were discontinued. The patient remained subjectively and objectively well and after April 29, 1957 was not seen again at the clinic.

On June 27, 1957, she again sought medical attention in the clinic complaining of marked decrease in visual acuity of the left eye of two weeks duration. Examination at this time revealed 3 diopter papilledema of the left eye with dilatation of the central retinal veins. (Fig. 3.) Visual acuity in this eye was now reduced to counting fingers at one foot. Physical examination, except for the changes related to the left eye was essentially normal. Blood pressure at this time was 140/96; the diastolic component remaining elevated since the original admission.

Pertinent laboratory data at this time revealed a completely normal urinalysis with no glucosuria, 15 grams of hemoglobin with 11,050 WBC's and a normal differential. Fasting blood sugar was 108 mgm %, blood urea nitrogen 21 mgm % total protein 6.8 grams with a normal albumin/globulin ratio, serum calcium 10.2 mgm %, and phosphorous of 4.3 mgm %. First strength purified protein derivative was reported as positive at this time while second strength was negative.

Because of the dramatic response to therapy previously, steroid therapy was again instituted but this time the drug used was prednisone. The plan of therapy was to give the drug until symptomatic and objective improvement occurred and then to discontinue the drug rapidly.

On July 4, prednisone, 40 mgm daily was started, together with probanthine and amphojel. A bland 1665 calorie diabetic diet was also prescribed. Four days following the institution of steroid therapy marked improvement in V OS to 20/200 was noted as well as marked resolution of the papilledema. (Fig. 4.) At this point isoniazid was added to the medical regimen for prophylaxis against the possible flare-up of an old tuberculous process while on steroid therapy. Eight days following the institution of prednisone therapy, the papilledema was noted to be less than 1 diopter and V OS was 20/70. Visual field examination revealed a marked reduction of a previously enlarged blind spot. Gradual reduction in the daily dose of steroid was begun at this point

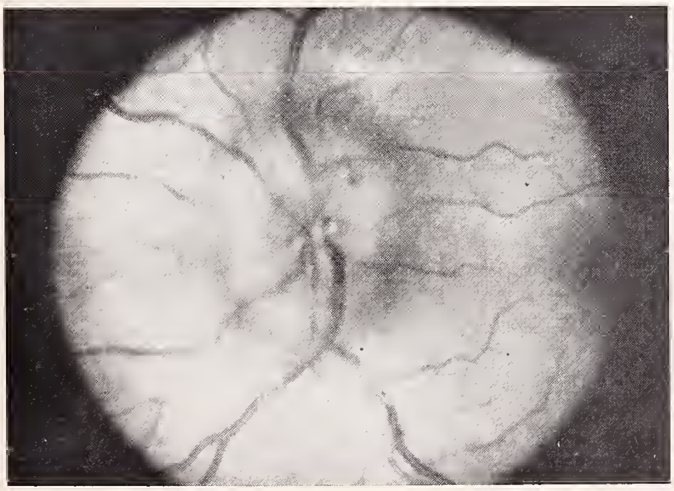

FIGURE III

Retinal photograph taken on July 2, 1957 at the time of readmission to the hospital in relapse. Note severe papilledema again present.

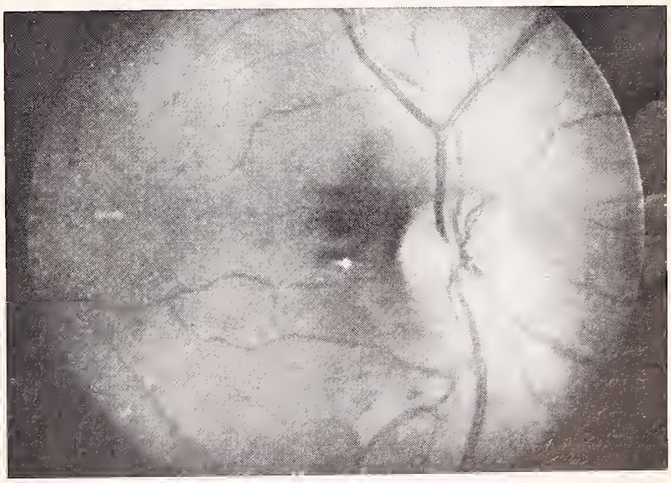

FIGURE IV

Photograph of retina taken on July 15, 11 days after institution of prednisone therapy. Complete regression of papilledema is noted.

and on August 25, 52 days after the initiation of treatment, all medications were discontinued. Continuous improvement was noted and at the time of discharge from the ward on July 26, V OS was 20/20-2 and the papilledema completely resolved. Repeat X-rays of the chest, hands, feet, skull, and orbit, again failed to reveal any boney or pulmonary evidence of sarcoidosis. Electrophoresis of the serum showed a normal pattern, and no evidence of steroid diabetes was noted during this period of therapy.

To the time of this writing, March 1, 1959, she has continued to remain asymptomatic both in regards to her diabetic tendencies and primary sarcoid disease of the orbit.

Discussion

Sarcoidosis of the orbit is a rare manifestation of this disease but rarer still is orbital sarcoid occurring without other evidence of generalized involvement. Benedict's 2 reported cases of orbital sarcoid in more than 1,000 cases of primary orbital tumors,[4] and the occurrence of only two cases of orbital sarcoidosis seen in more than 200 patients with pathologically proven generalized sarcoidosis in a 15 year interval from 1940 to 1955[9], serves to illustrate the rarity of this manifestation.

Orbital sarcoid usually presents itself as a palpable, unilateral orbital mass occasionally producing proptosis. The diagnosis can be proven only by histologic study of the lesion and even then tuberculosis or other granulomatous diseases may be difficult to rule out. In the case presented, the initial symptom was diminishing visual acuity which preceded the clinical appearance of the orbital mass by approximately one month.

Therapy with cortisone was administered because of the known beneficial value of this drug. Since the patient was Negro, it was decided to place her on concomitant anti-tuberculous therapy to help prevent a possible flare-up of a pre-existing tuberculous lesion while on steroid therapy. Her gradual but definite improvement during the first hospitalization was attributed to the cortisone therapy, but a natural remission of the disease process or the administration of isoniazid could not be ruled out as contributing factors.

In 1953, Edelson[10] reported on six cases of histologically proven sarcoidosis treated with 3 mgm/kilogram of body weight of isoniazid in which four cases showed definite subjective and objective improvement. In three of these cases however, the lesions were confined to the skin. Therapy was of five and one half months or longer in duration and those treated for a shorter period of time showed no benefit. In a series of four patients, two of whom had lymphatic involvement and one pulmonary sarcoid, treated with 0.2 to 0.5 grams of isoniazid daily from 2 to 5 months no benefit was noted by Cormia et al,[11] and in 2 cases of sarcoidosis reported by Holsinger and Dalton[12] treated with isoniazid no improvement was noted in the patient with cutaneous sarcoid after three months of therapy. Questionable improvement was noted in the patient with pulmonary sarcoid at the end of four months of therapy.

At the time of this patient's third hospital admission, in relapse, isoniazid therapy was initially withheld in order to eliminate this factor in the evaluation of steroid therapy. On this occasion, she was placed on prednisone rather than cortisone because of the lesser electrolyte and glucocorticoid effects of the drug. After four days on 40 mgm of prednisone alone, marked objective and subjective improvement was noted, at which time isoniazid therapy was added not for treatment of the sarcoid disease but for its anti-tuberculous effect.

Other therapeutic regimens have been used in the treatment of generalized as well as ocular sarcoidosis. These include ultraviolet light, radium, roentgen rays, oral doses of calciferol and intravenous and oral administration of arsenic. In the case reported by Stein and Henderson[8] X-ray therapy directly over the globe had beneficial affect but in all the other reported cases neither steroids nor other forms of therapy were used. Because of the frequent natural remissions of this disease it is very difficult to assess the value of therapy employed.

In this reported case long term maintenance therapy with small doses of prednisone was considered and in the event of another relapse this plan will be instituted.

Summary

A case of recurrent primary orbital sarcoidosis without any systemic manifestations is presented. This case is considered interesting because of the rarity of primary orbital sarcoidosis, and its dramatic response to steroid therapy.

Acknowledgement

The author wishes to thank Dr. George N. Wise, whose efforts made possible the excellent retinal photographs reproduced in this manuscript.

REFERENCES

1. King, M. J.: Ocular lesions of Boeck's sarcoid. Tr. Am. Ophth. Soc., 37: 442, 1939.

2. Kaplan, M.: Boeck's sarcoid: Report of a case with unusual precipitating factor. Am. J. Ophth., 31: 83, 1948.

3. Bodian, J. M. and Lasky, M. A.: Sarcoidosis of the orbit. Am. J. Ophth., 33: 343, 1950.

4. Benedict, W. L.: Sarcoidosis involving the orbit. Arch. Ophth., 42: 546, 1949.

5. Knapp, F. N. and Knoll, W. V.: Sarcoid involving the orbit. Tr. Am. Ophth. Soc., 47: 147, 1949.

6. Rider, J. A. and Dodson, J. W.: Sarcoidosis: Report of case manifested by retrobulbar mass, proptosis, destruction of orbit, and infiltration of paranasal sinuses. Am. J. Ophth., 33: 117, 1950.

7. Alexander, B.: Sarcoidosis. Tr. Canad. Ophth. Soc., 5: 138, 1952.

8. Stein, H. A. and Henderson, J. W.: Sarcoidosis of the orbit: Survey of the literature and report of a case. Am. J. Ophth., 41: 1054, 1956.

9. Carr, D. T. and Gage, R. P.: The prognosis of sarcoidosis. Am. Rev. Tuberc., 69: 78, 1954.

10. Edelson, E.: Isoniazid in the treatment of sarcoidosis: A preliminary report. J. Invest. Derm., 21: 71, 1953.

11. Cormia, F. E., Costello, M. J., Barker, L. P., Nelson, C. T., Wilson, E. W., and Cramer, J. A.: Isoniazid in treatment of cutaneous diseases. A.M.A. Arch. Derm. and Syph., 68, 536, 1953.

12. Holsinger, R. E. and Dalton, J. E.: Isoniazid therapy in cutaneous tuberculosis and sarcoidosis. Jour. Amer. Med. Assoc., 154: 475, 1954.

In its search for the truth science must formulate some anticipation of what it expects to find. Such anticipation is clearly not fictional even if it turns out to be false, provided it has been held as a hypothesis to be tested. In trying to visualize the unknown, the imagination must clothe it with attributes analogous to the known. Thus electricity was first conceived as a fluid, then as lines or tubes of force, and now as a current of mutually repellent electrons. So the mind was viewed by British psychologists as an associated group of "mental states" and by James as a "stream of consciousness." Each of these like the mechanical models of the other or of the various unknown physical processes, suggests verifiable analogies and thus directs research. If these directions turn out false our analogy has acted like a false hypothesis.

—M. R. Cohen and E Nagel, *Introduction to Logic And The Scientific Method.*

Fatal Vitamin D Intoxication Masked By Multiple Sclerosis

Report Of A Case With Post Mortem Findings

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Vitamin D intoxication is a well known clinical entity which has been described in over 100 cases in the medical literature.[1–5] Despite these reports, these sterols are still prescribed without appreciation of the consequences of prolonged or intensive therapy. The clinical picture of toxicity from vitamin D is well defined, although at times coincident disease processes may mask the diagnosis.

This report concerns a patient in whom the presenting signs and symptoms were mistakenly attributed to the underlying disease process of multiple sclerosis. In addition to the classic pathologic findings described previously,[1,3] generalized osteosclerosis and intestinal hemosiderin deposits were noted in this patient. The former was attributed to the high calcium intake and the latter to the chronic iron therapy.

Case Report

M.A. (♯A3233), a 38 year old, white, married, male newspaper pressman, was referred to the West Haven Veterans Administration Hospital on January 27, 1960, because of progressive debilitation from multiple sclerosis. The patient had been in excellent health until 1951, when left hemianesthesia was noted for the first time. He recovered after several weeks, but became troubled by recurrent episodes of paresthesiae of the hands and feet. Muscle weakness was not noted until 1956, and in addition, minimal ataxia of the extremities, nystagmus, urinary incontinence and temporal pallor of the optic discs were present. There was diminished visual acuity but no diplopia. Treatment with vitamin B-12 and prostigmine injections was begun and continued to the present admission.

Progressive muscular weakness and ataxia confined him to a bed-chair existence in 1957, and shortly thereafter, the intention tremors and weakness of the arms became so severe that he was unable to feed himself.

In early 1959, his marked lability of emotions led to the use of a steroid containing tranquilizer (Ataraxoid). Other medications prescribed at this time included an antipruritic agent (Temaril) for several weeks to control severe generalized pruritus and ferrous sulfate for slight anemia. Hearing loss became evident in July 1959, and he became more difficult to manage at home.

In October 1959, high fever, shaking chills and mental confusion were ascribed to pneumonia and treatment with penicillin and erythromycin was begun at home. The fever subsided in several days but the subsequent course was one of progressive deterioration of his physical and mental state. Muscle weakness and wasting became striking. The progression of emotional lability, slurred speech, dis-

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orientation, inanition, and nausea and vomiting made necessary his admission to this hospital.

The patient was a cachectic, dehydrated, disoriented white man who appeared much older than his stated age. The temperature was 98.6 F. (37 C.) orally; pulse 90 per minute and regular; respirations 22 per minute and slightly labored; and blood pressure 150/50-0 mm. Hg.

The skin showed large areas of purple mottling and could be picked up with ease. Multiple crusted decubitus ulcers were present over the pressure points of the body. The tongue was markedly dry but normally papillated. There was generalized hyperresonance of the chest cavity and the diaphragms were low with diminished excursions. Examination of the heart was unremarkable. The abdomen showed marked wasting and a non-tender liver was palpable 3-4 cm. below the right costal margin. Extremities showed clubbing but no cyanosis or edema. Rectal examination revealed normal sphincter tone and a diffusely enlarged prostate. The stool specimen was dark with a trace reaction to guaiac testing. The neurological examination revealed many abnormalities. Mentation was grossly abnormal with disorientation and confusion. The pupils were round, regular equal and reactive to light and accommodation. Nystagmus was noted in all cardinal positions. Internuclear ophthalmoplegia was also present. Funduscopic examination revealed temporal pallor of the optic discs bilaterally but no venous sheathing. Sensory examination could not be accurately assessed because of poor cooperation and confusion. Motor assessment showed generalized weakness of all extremities. There were marked intention tremors and spasticity of the arms. The deep tendon reflexes were hyperactive and greater on the right. The Babinski sign was present bilaterally.

The white blood count which was 18,900 with a slight shift to the left in the differential count decreased to 8,400 within several days. The hematocrit ranged between 31-35%. Red blood cell morphology revealed normochromic normocytic cells. The urine was cloudy and dark yellow in color with a specific gravity of 1.010. Examination for albumin, sugar and acetone were negative. Microscopic examination of the urine sediment revealed numerous white blood cells and bacteria. Aerobacter aerogenes and Proteus morgagni were cultured from the urine. The initial blood urea nitrogen was 156 mg. per 100 ml., fasting blood sugar 98 mg. per 100 ml. and total cholesterol 161 mg. per 100 ml. The serum total protein was 6.79 grams per 100 ml. with an albumin component of 3.63 grams per 100 ml. Serum electrolytes revealed a sodium of 131 mEq. per liter, chlorides 85 mEq. per liter, potassium 3.3 mEq. per liter and a carbon dioxide content of 20 mEq. per liter.

A roentgenogram of the chest showed pulmonary emphysema and fibrosis with a large bullous cyst in the right upper lung field. There was evidence of peritendinitis calcaria in the region of the left shoulder and generalized increase in bony density (Fig. 1).

The initial clinical impression was that multiple sclerosis, dehydration and malnutrition were the underlying factors responsible for the rapidly deteriorating condition of the patient. The diagnosis of chronic pyelonephritis was also made on the basis of the high blood urea nitrogen, the low specific gravity of the urine and the microscopic findings of numerous white blood cells and bacteria in the sediments. With hydration, 24 hour urine volumes were persistently elevated ranging between 2500 ml.-3800 ml. There was improvement in the serum electrolyte values; however, the carbon dioxide content did not return to normal despite saline and one-sixth molar lactate infusions. The blood urea nitrogen value fell from 156 to 64 mg. per 100 ml. within 8 days. There was slight but definite improvement of the sensorium. All of the previous medications were discontinued and only thiamine hydrochloride was instituted.

On the 10th hospital day the patient suddenly expired. The terminal episode which occurred 30 minutes after ingesting a large lunch was character-

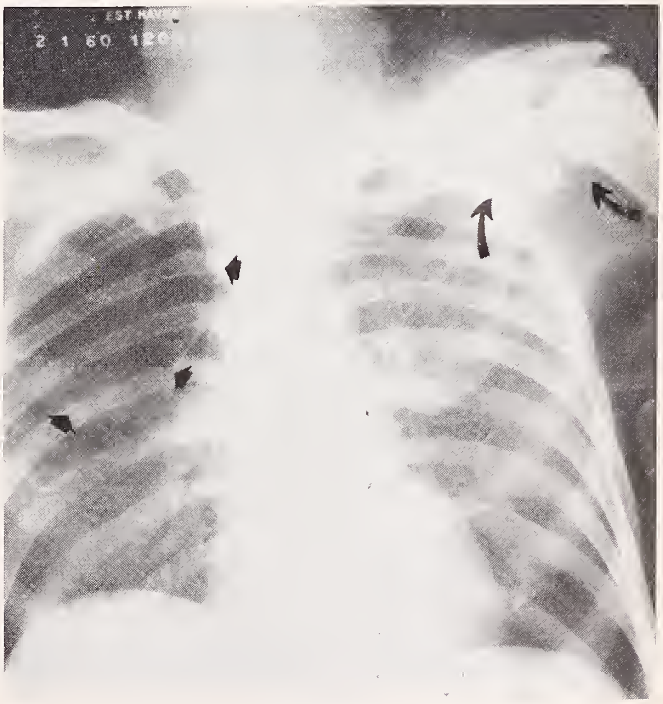

Figure I

Postero-anterior view showing large bullous cyst in the right upper lung field; osteosclerosis; and peritendinitis calcaria in the region of the left shoulder.

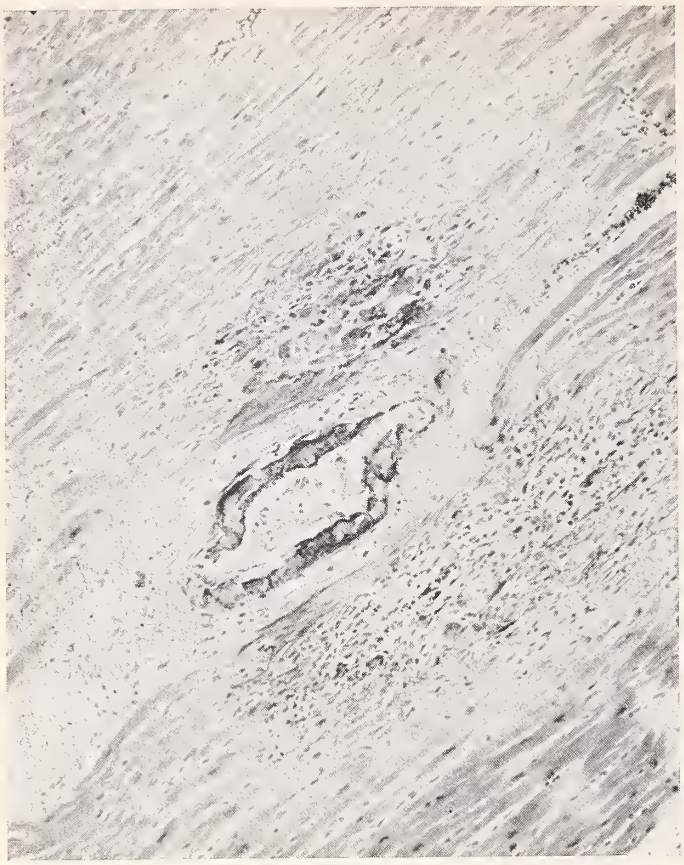

Figure II
Calcification of small arteries in the myocardium with perivascular fibrosis.

ized by the sudden onset of cyanosis and labored respirations. Aspiration of food was suspected as the cause of death. Shortly prior to death, the serum calcium which was drawn on admission was reported as 13.8 mg. per 100 ml. (normal: 9-11).

Subsequent investigation indicated that the patient's therapeutic regimen prior to admission consisted of:

Davitin® (vitamin D): 300,000 units daily for 2½ years.

L-Glutavite® (monosodium l-glutamate plus vitamins and ferrous sulfate): 1 teaspoon daily for 2 years.

ferrous sulfate: 900 mg. daily for 1 year.

Ataraxoid® (steriod containing tranquilizer): 2 tablets (each containing 2.5 mg. prednisolone) daily for 3 months and then for the last 9 months prior to admission, 2 tablets (each containing 5.0 mg. prednisolone) daily.

Stuart Prenatal® (vitamins): 3 tablets daily for 3 weeks prior to admission. Tablets contain multivitamins and minerals including vitamin D 400 units, calcium sulfate-anhydrous 1190 mg. and ferrous fumarate 120 mg.

Post mortem examination was performed and the following pertinent findings were noted. The body was that of a young, wasted, white male with limbs deformed by flexion contractures. Decubitus ulcerations covered both buttocks.

The heart was of normal size and the coronary arteries were thin-walled and widely patent. The myocardium was stippled with chalky, white, soft perivescular deposits in addition to mottling in the area of the left ventricle. Sections demonstrated calcification and intimal proliferation in the walls of the small arteries and arterioles with foci of calcified perivascular fibrosis (Fig. 2). The sections from the left ventricle revealed acute infarction.

The lungs were heavy and moist. The right upper lobe was compressed by a large fluid-filled cyst. Severe cystic changes were present in the right middle lobe, superior segment of the right lower lobe and the entire left upper lobe. Sections showed capillary congestion, intra-alveolar edema with hemosiderin-laden macrophages and calcification of arterial wall's, bronchial cartilage and alveolar septa.

The liver was not enlarged. Sections showed abundant brown granular pigment in pericentral parenchymal cells, but this did not stain for iron. The total hepatic iron determined chemically was well within normal limits.

Other significant findings were present in the intestine, bones, kidneys and brain. The duodenal and jejunal mucosa had a tan color. Mesenteric lymph nodes were enlarged (measuring up to 1.3 cm. in diameter), firm and had a tan color on section. Microscopic sections revealed numerous hemosiderin-laden macrophages in the tips of villi (Fig. 3). Similar hemosiderin granules were present in the cells lining the sinuses of mesenteric nodes. Iron was scarce in liver Kupfer cells and hilar node sinus cells, but was increased in macrophages within the bone marrow. Sections from other regions of the intestines were not obtained.

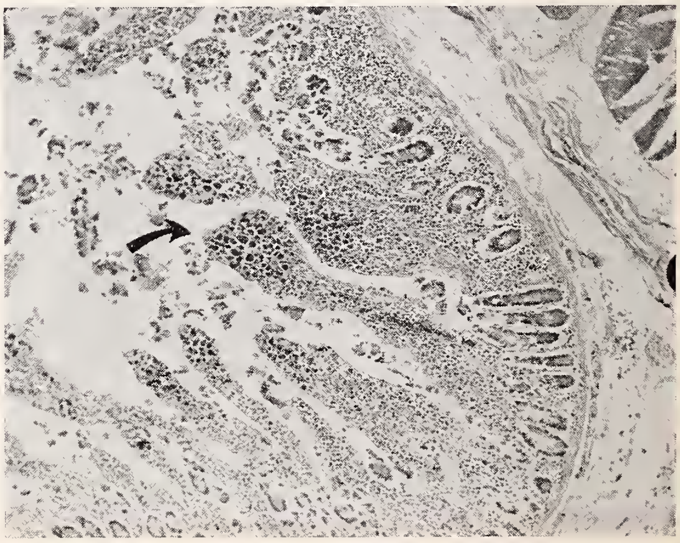

Figure III
Hemosiderin-laden macrophages in jejunal villi.

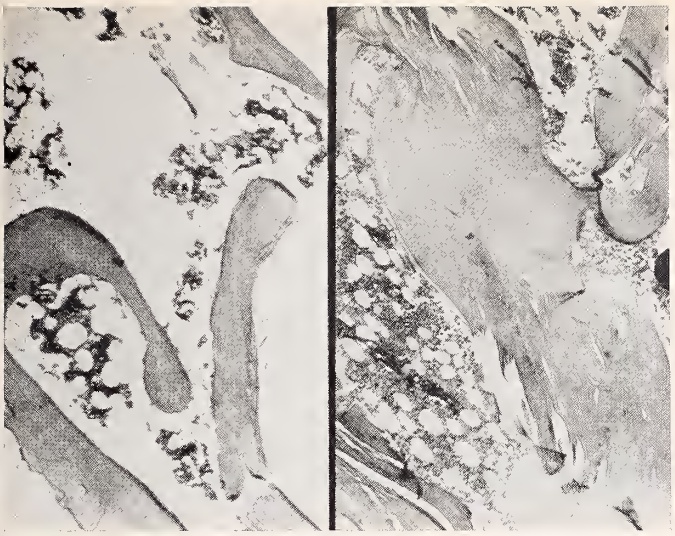

Figure IV
Osteosclerosis: hyperplasia of rib trabeculae. Normal on left, patient on right.

Calcification of costal cartilage and increased density of ribs were noted grossly. Sections of rib disclosed markedly thickened bony trabeculae (Fig. 4).

The kidneys weighed 160 grams each. Their capsules stripped easily revealing a pale, grey-white, finely scarred cortex studded with petechiae. They cut with a gritty sensation caused by numerous minute calculi in both cortex and medulla (Fig. 5). These calculi were most abundant at the corticomedullary junction. Sections of cortex consisted of a patchwork of atrophic and hypertrophied convoluted tubules. Glomeruli were less damaged, a few contained small calculi and a few were hyalinized. Cysts and larger calculi were present in the papillae. Many collecting ducts were occluded by calculi or epithelial proliferations.

The parathyroid glands were not enlarged. Three were identified. Sections demonstrated cords of chief cells surrounding fat-filled spaces.

Examination of the brain revealed innumerable small and large, irregular, grey plaques throughout the white matter including the cerebellum and the better portion of the corpus callosum. Plaques were also seen in the grey matter and the basal ganglia.

Discussion

Vitamin D intoxication is characterized by anorexia, generalized weakness, lethargy, striking mental changes, paresthesiae and urologic difficulties.[3] These findings which were present in this patient may also be seen in multiple sclerosis.[6] To further complicate the picture, uremia of a severe degree was later noted which is compatible with advanced vitamin D intoxication but not usually with multiple sclerosis. Because of the presence of bacteria and white blood cells in the urine, the uremia was mistakenly attributed to chronic pyelonephritis which has been occasionally associated with severe multiple sclerosis.[6]

Approximately one year prior to admission, this patient had an episode of severe generalized pruritus without eruptions which subsided after several weeks of therapy. Since pruritus has been described before in cases of vitamin D intoxication,[1,2] it may well be that symptoms of vitamin D poisoning were developing at that time. The subsequent development of the full-blown clinical picture was insidious until 3 months prior to admission when after an acute episode of pneumonia, there was rapid progression of symptoms. It is quite likely that marked renal insufficiency was primarily responsible for the deterioration. In support of this view was the persistently low carbon dioxide value which suggested mild acidosis in contrast to the usual picture of alkalosis seen in less severe cases of vitamin D intoxication.[2]

Somewhat surprising in this case was the serum calcium level which was only moderately elevated. Despite the ingestion of 300,000 units of vitamin D and 1 to 2 quarts of milk daily for almost 3 years, the serum calcium level was only 13.8 mg. per 100 ml. Unfortunately the serum phosphate value was not determined, but presumably it was elevated because of the severe degree of renal insufficiency. This would tend to depress the serum calcium level. Recently antagonism between adrenal glucocorticoids and vitamin D has been proposed, and cortisone has been used to lower serum calcium in secondary hypercalcemic states.[2,7] Therapy with Ataraxoid in this patient was begun one year prior to admission in dosages containing 5-10 mg. of prednisolone daily. Although larger amounts of corticosteroids are employed in the treatment of secondary

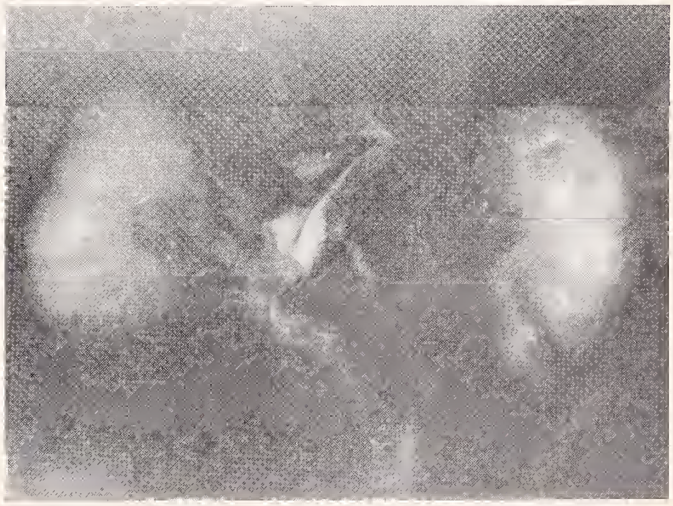

Figure V
Renal calcification: roentgenogram of formalin fixed specimen.

hypercalcemia, it is quite possible that this amount of prednisolone was sufficient to maintain the serum calcium at a relatively low level in the face of high calcium and vitamin D intake.

Whether early recognition and vigorous corticosteroid therapy of the vitamin D intoxication during this hospitalization would have altered the eventual outcome is doubtful. The cause of his sudden death is unknown but presumably it was due to ventricular fibrillation secondary to infarction of the calcium-stippled left ventricle. Cortisone therapy may suppress the inflammatory changes due to the presence of calcium in the myocardium but the actual changes of fibrosis and calcification are not reversible. Although the renal insuffiency in vitamin D intoxication has been described as reversible,[4] the more severely involved renal changes in subsequent reports of other cases have shown only partial improvement.[1,5]

The presence of a normochromic normocytic anemia found in this case is in keeping with the findings in other cases.[5] Vitamin D and oral calcium salts were used in this patient to treat muscle spasm and to offset an expected disuse osteoporosis. This patient, however, did not have osteoporosis as anticipated or as has been noted in other cases of vitamin D intoxication,[3] but rather had osteosclerosis (Fig. 5). This, however, may well have been a function of the increased calcium intake. Roentgenographically, this feature was not fully appreciated until after the post mortem examination when the diagnosis became obvious. Osteosclerosis has also been reported in a few cases of chronic renal failure of varied etiology.[8]

The metastatic calcification in this case was similar to that described previously in vitamin D intoxication,[1,3] although the characteristic corneal or scleral calcifications were not noted. However, no special search was made because the diagnosis was not suspected. Metastatic calcification in itself is not pathognomonic of this condition and can be found in lesser degree in severe skeletal disease, renal insufficiency, parathyroid adenoma and idiopathic hyperparathyroidism.[9–12] In vitamin D intoxication the severe renal disease with the elevated phosphate and increased calcium intake and absorption maximally predispose to metastatic calcification. In hyperparathyroidism there is less likely to be renal insufficiency of such magnitude and consequently less extensive metastatic calcification.

Recent work by Carone[13] suggests that the initial renal lesion of hypercalcemia occurs in the epithelium of collecting ducts. Epithelial proliferation may produce ductal obstruction and eventually the extensive scarring seen in advanced disease. The primary event probably involves the mitochondria of the ductal epithelium.[14]

The myocardial changes in vitamin D intoxication may be quite severe despite patency of large coronary vessels. The pathologic process appears to involve the walls of the small arteries with calcification (Fig. 6). Extensive involvement may result in obstruction of the lumina and subsequent multiple infarctions.

The presence of iron in the jejunal mucosa and mesenteric nodes was not associated with increased hepatic iron. Gillman[15] has described and timed the phases of iron absorption in studies performed in guinea pigs and suggests that this phenomenon may represent gastrointestinal control of iron absorption. Whereas vitamin D has been shown to increase the absorption of iron in rats,[16] high intake of calcium and phosphate has been shown to impede iron absorption through the formation of iron-phosphate complexes in the intestinal lumen.[17] The relationship between iron intake and absorption in this case with iron therapy, large doses of vitamin D, and high calcium intake is quite complex.

The changes in the brain were characteristic of multiple sclerosis. The areas of demyelinization were extensive but did not appear recent in origin.

There is little evidence at the present time to support the therapeutic use of vitamin D to diminish muscle spasm in multiple sclerosis or to prevent the development of disuse osteoporosis. The hazards of such therapy are real however, as evidenced by the great number of cases of vitamin D intoxication reported. In addition, large doses of vitamin D may in itself hasten demineralization of the skeletal structures by raising the level of extracellular calcium and increasing its renal excretion to such a degree as to result in negative calcium balance.[18]

Summary

A case of vitamin D intoxication in a patient with advanced multiple sclerosis is presented in detail. The diagnosis was not established during life and the patient subsequently died from a myocardial infarction secondary to myocardial calcification.

The similarity in signs and symptoms of vitamin D intoxication and multiple sclerosis and its complications is discussed.

Post mortem findings revealed extensive metastatic calcification, and pertinent clinical and pathologic observations are noted.

Acknowledgement

The authors are grateful to Dr. L. Levy, Chief, Neurology Service, Dr. T. Amatruda, Chief, Metabolism Section, Dr. H. O. Conn, Chief, Medical Service and to Drs. R. Yesner, Chief, and G. deSuto-Nagy of the Pathology Department for their advice in the preparation of this report.

REFERENCES

1. Kaufman, P., Beck, R., and Wiseman, R. D.: Vitamin D ("Ertron") therapy in arthritis. J.A.M.A., 134: 688-690 (June 21) 1947.

2. Verner, J. V., Engel, F. L., and McPherson, H. T.: Vitamin D intoxication: Report of two cases treated with cortisone. Ann. Int. Med., 48: 765-773 (April) 1958.

3 Chaplin, H., Clark, L. D., and Ropes, M. W.: Vitamin D intoxication. Am. J. Med. Sc., 221: 369-378 (April) 1951.

4. Adams, F. D.: Reversible uremia with hypercalcemia due to vitamin D intoxication. New England J. Med., 244: 590-592 (April 19) 1951.

5. Scharfman, W. B. and Propp, S.: Anemia associated with vitamin D intoxication. New England J. Med., 255: 1207-1212 (December 27) 1956.

6. Symposium: Multiple Sclerosis and the Demyelinating Diseases. Baltimore, The Williams & Wilkins Company, 1950.

7. Anderson, J., Harper, C., Dent, C. E., and Philpot, G. R.: Effect of cortisone on calcium metabolism in sarcoidosis with hypercalcemia. Lancet, 2: 720-724 (October 9) 1954.

8. Crawford, T., Dent, C. E., Lucas, P., Martin, N. H., and Nassin, J. R.: Osteosclerosis associated with chronic renal failure. Lancet, 2: 981-988 (November 13) 1954.

9. Carpenter, H. M. and Pautler, E. E.: Hyperparathyroidism with renal insufficiency. Report of a case confused with the "Burnett Syndrome." New England J. Med., 250: 453-456 (March 18) 1954.

10. Young, M. O. and Halpert, B.: Parathyroid adenoma with generalized metastatic calcification. Arch. Path., 44: 628-634 (December) 1947.

11. Waife, S. O.: Parathyrotoxicosis: The syndrome of acute hyperparathyroidism. Am. J. Med. Sc., 218: 624-635 (December) 1949.

12. Mulligan, R. M.: Metastatic calcification. Arch. Path., 43: 177-230 (April) 1947.

13. Carone, F., Epstein, F. H., Beck, D., and Levitin, H.: The effects upon the kidney of transient hypercalcemia induced by parathyroid extract. Am. J. Path., 36: 77-104 (January) 1960.

14. Scarpelli, D. G., Tremblay, G., and Everson Pearse, A. G.: A comparative cytochemical and cytologic study of vitamin D induced nephrocalcinosis. Am. J. Path., 36: 331-354 (March) 1960.

15. Gillman, T. and Ivy, A. C.: Histological study of participation of intestinal epithelium, reticuloendothelial system and lymphatics in iron absorption and transport. Gastroenterology, 9: 162-169 (August) 1947.

16. Fuhr, I. and Steenboek, H.: The effect of dietary calcium, phosphorus and vitamin D on the utilization of iron. J. Biol. Chem., 147: 59-64 (January) 1943.

17. Kinney, T. D., Hegsted, D. M., and Finch, C. A.: The influence of diet on iron absorption. J. Exper. Med., 90: 137-146 (August) 1949.

18. Albright, F. and Reifenstein, E. C., Jr.: The Parathyroid Glands and Metabolic Bone Disease: Selected Studies, Baltimore, The Williams & Wilkins Company, 1948.

I believe . . . that all superlative work, in art as in science, is a result of a great zeal pressed into the service of a great idea.

—Ramon Y. Cajal, *Precepts And Counsels On Scientific Investigation.*

Spontaneous Rupture Of The Esophagus

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Rupture or perforation of the esophagus is a surgical catastrophe of increasing importance. With modern diagnostic tools, surgery, antibiotics and other supportive measures, it should be a curable lesion. All too frequently, however, the perforation or rupture is unrecognized and the patient is doomed to an early death.

In 1724 Hermann Boerhaave published the first accurate description of the clinical course of spontaneous esophageal rupture in his Atrocis, nec Descripti Prius, Morbi Historis.[1] In this remarkable manuscript Boerhaave describes the case of a robust, healthly man of fifty years, who, following dietary indiscretion, induced vomiting in himself. During an episode of retching the patient was seized with severe upper abdominal and lower chest pain and complained that "something near the upper part of his stomach was ruptured." The physical findings were minimal aside from a seriously ill patient in severe pain. His physician was mystified, and resorted to treatment with oral potions and enemas. The patient quickly became desperately ill and died. An autopsy was performed and massive subcutaneous emphysema and bilateral foul smelling hydrothorax containing wine and food particles were described. Of special interest was the description of a rent in the mediastinal pleura and esophagus about two inches above the diaphragm on the left through which gastric contents and ingested food and liquid had entered the pleural cavity. He concludes "when the disease I described occurred we could not diagnose it by its symptoms, but if it had been recognized, it would have ignored every remedy. When it recurs again it can be recognized with the help of this description, but cannot be remedied by any assistance of the medical profession." This attitude persisted with regard to this lesion until modern surgery made direct attack on the esophageal rupture possible.

For the purpose of clarification, it is necessary to differentiate between rupture and perforation of the esophagus. Mackler[2] defines rupture as an abrupt tear in a previously undiseased esophagus while using the term perforation to denote a split in the wall of the esophagus caused by instrumentation or intrinsic disease. According to this definition, spontaneous or post-emetic dehiscence of the esophagus would be classified as an esophageal rupture.

A patient with spontaneous rupture of the esophagus was recently seen on the Hartford Hospital Surgical Service. This prompted us to examine the records of all patients with this disease seen at the Hartford Hospital from 1936 through 1960. Five cases of spontaneous rupture of the esophagus were treated during this period. All of these patients died. In one patient, the following reported case, the diagnosis was made and esophageal closure with pleural drainage performed. It seemed appropriate, therefore, to review the case history of this patient. In the other four cases no definitive surgical procedure was performed and the diagnosis was made at autopsy.

Case History

B.P.S., a 40-year-old white male was admitted to the Hartford Hospital at 3:15 a.m. November 20, 1960. At the time of admission the patient was desperately ill and in shock. He had a long history of proven duodenal ulcer and was also a moderately heavy drinker. Three months prior to admission nocturnal vomiting of gradually increasing severity had been noted. The vomiting became almost constant two days before admission. At 1:00 a.m. on the day of admission the patient began to vomit blood,

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complained of abdominal and back pain and subsequently collapsed.

On physical examination he was acutely ill, dehydrated, and in obvious clinical shock. The chest was normal except for an intermittent pericardial friction rub. The abdominal examination disclosed generalized tenderness and rigidity, although there was no rebound tenderness. The blood pressure was 94/62 and the pulse 120 and regular. The hematocrit was 51 and a lateral decubitus film of the abdomen showed no free air.

The initial impression was an obstructed, bleeding and probably perforated duodenal ulcer and the patient was treated with whole blood, intravenous fluids and nasal oxygen in preparation for surgery. At 10:00 a.m. on the day of admission the patient was taken to the operating room where an exploratory laparotomy was performed. An inflammatory, obstructing mass about the duodenum was found. In addition the stomach was full of blood clots. No perforation was discovered and the abdomen was closed.

Postoperatively the patient did very poorly; the temperature rising at 104° by 5:00 p.m. the same day. At that time examination of the chest was normal. A chest x-ray showed considerable opacity through the heart on the left. Also noted on the chest film was "an unexplained small bubble of air lying fairly close to the spine projected through the heart." A diagnosis of spontaneous esophageal rupture was made.

The patient was taken to the operating room forty hours after admission and a left exploratory thoracotomy performed. On opening the chest there was a gush of air and gray-brown fluid. A rent in the posterior lateral aspect of the lower esophagus was found with surrounding severe pleural reaction and mediastinitis. Suture of the esophagus and closure of the chest with mediastinal and pleural drainage with two large rubber catheters was performed. At the termination of the procedure the patient's condition was much improved.

Postoperatively the patient improved slowly, although he ran a febrile course throughout his entire hospital stay.

On the fifteenth postoperative day feedings were begun, but oral methylene blue dye was noted coming from the chest tube after its ingestion, thus substantiating a diagnosis of esophago-pleural fistula. The fistula was treated by placing the patient on nothing by mouth with alimentation through a nasogastric feeding tube.

On the eighteenth postoperative day the chest x-ray showed a reaccumulation of fluid in the left pleural space and purulent material was noted coming from the chest tube. A diagnosis of empyema was made and open surgical drainage was performed. A chest tube was left in the pleural space for drainage.

The patient continued to show gradual but steady improvement, with ambulation begun on the nineteenth day post-thoracotomy. On the twenty-fourth postoperative day the patient complained of respiratory distress, began gasping for breath and died suddenly.

At autopsy there was a large fresh pulmonary embolus in the right pulmonary artery. The previously sutured tear in the esophagus was noted just above the esophago-gastric junction with a 3 mm. opening at its superior margin. A fistulous tract from the rent to the anterior mediastinal and left pleural space was noted. There was a 1 cm. ulcer in the duodenum.

Sites And Mechanism Of Rupture

The most common site of spontaneous esophageal rupture is the lower one-third on the left posterolateral aspect.[2] Anatomically there is good reason for the majority of ruptures to occur laterally. The heart and pericardium give support anteriorly while the aorta gives posterior support. On the lateral aspect of the lower one-third of the esophagus only the mediastinal pleura is present for support. An additional anatomical factor may also be that the longitudinal muscle fibers of the esophageal wall begin to fan out as they approach the esophago-gastric junction, still further predisposing this area to rupture.

The tear is usually longitudinal and the mucosa is the last portion of the wall to give way.[3] The esophageal muscle fibers part first, with ballooning and subsequent rupture of the mucosa. The intraluminal pressure required to rupture the esophagus has been reported as 3.0 to 7.5 lb./sq. inch[2,4] in cadavers. The latter authors also report that removal of the mucosa lowers the bursting pressure to 1.0 to 2.2 lb./sq. inch.[4]

The act of vomiting is the forceful ejection of gastric contents into the esophagus by violent contraction of the diaphragm and abdominal muscles, not by retrograde peristaltic movements of the stomach and esophagus. Bearing in mind the rather low pressures required to rupture the esophagus and the physiology of the act of vomiting, it is logical to speculate that rupture could occur at the weakest point of the organ when food and liquid are forced into it under pressure. This would seem to be in agreement with the fact that prior consumption of a large meal is frequently a prominent part of the history in many reported cases.[2,5,6] It is interesting that several reported cases in which prior vomiting has not been a factor have had situations in which increased intra-abdominal pressure was present such as: childbirth, seizures, blunt trauma and weight lifting.[2] It is conceivable in these situations not associated with vomiting, that abdominal muscle contraction could increase intra-abdominal pressure and forcefully eject gastric contents into the esophagus and produce rupture.

Diagnosis

The weakest link in the chain of events leading from onset of symptoms to definitive treatment in esophageal rupture is usually that of making the diagnosis. This occurs because the patient is desperately ill with few or no signs or symptoms related to the esophagus or chest. Also because of the rarity of this condition it is seldom included in the differential diagnosis of abdominal or chest pain.

The characteristic history is that of a middle-aged male who may have a previous history of ulcer disease,[7] and who begins to vomit with increasing severity, frequently after ingestion of a heavy meal or liberal amounts of alcohol. There will usually be no antecedent symptoms suggestive of esophageal disease. Vomiting is followed after varying periods of time by the sudden onset of lower chest and/or epigastric pain which may radiate to the back and be described as having a "tearing" quality. The pain is usually steady and boring. Little relief is obtained by analgesic drugs.

When first seen by a physician, the patient will usually be in shock, dehydrated, and in severe pain. He also will be tachypneic with shallow, guarded respirations and may be cyanotic. The voice may have a peculiar nasal twang presumably from involvement of the recurrent laryngeal nerve in the infectious process of the mediastinum.[8] Hamman's Sign may be present and varying lung findings are the rule. Very commonly the chest findings are minimal. Cervical emphysema is said to be present in slightly less than two-thirds of the cases,[9] but is rarely an initial sign.

Most laboratory values are non-specific. A leucocytosis with a shift to the left is present, and hematocrits, in the absence of hemorrhage, will show varying degrees of hemoconcentration. Serum amylase determinations may be normal or slightly elevated.

Roentgenological examination can be extremely helpful when the esophageal rupture is suspected, and may point the way to the correct diagnosis. Mediastinal widening, with or without mediastinal air and fluid levels, should make one suspect the diagnosis. In the case reported here, a finding that helped provide the correct diagnosis was an x-ray report of "an unexplained small bubble or two of air lying fairly close to the spine projected through the heart." In two other cases changes at the lung bases were present and were clues that might have been helpful. The presence of pleural fluid or pneumothorax is a helpful x-ray sign, but may not be present early in the illness.

The use of contrast media to delinate the area of rupture has been advocated.[9] This may identify with certainty the level and laterality of the rupture. These facts are important since the surgical approach and prognosis are quite different depending upon the level of rupture. However, the failure to demonstrate a rupture by this method does not rule out its presence. Some authors[10] feel that the diagnosis can be made without the use of contrast media.

A technique that is useful for diagnosis is thoracentesis after oral ingestion of methylene blue. If methylene blue appears in the aspirate, the diagnosis of esophagopleural communication is established. Esophagoscopy is not mentioned in the literature[1–15] as a useful diagnostic procedure in spontaneous rupture of the lower esophagus.

Differential Diagnosis

There are a number of acute conditions which enter into the differential diagnosis of spontaneous esophageal rupture. The most common misdiagnosis is perforated peptic ulcer.[2,9,11] Others are pancreatitus, mesenteric artery occlusion, coronary thrombosis, dissecting aneurysm, and pneumonia. Careful history and physical examination with appropriate laboratory and x-ray studies should permit the proper diagnosis to be made in most instances.

Treatment

There is almost uniform agreement among recent authors[2,3,8,9,11,12] that when the diagnosis of spontaneous rupture of the lower esophagus is made or seriously suspected, immediate thoracotomy is indicated even in the desperately ill patient. Irvin, et all,[11] feel that thoraocotomy is indicated when a diagnostic triad consisting of (1) vomiting prior to pain, (2) interstitial emphysema in the neck, and (3) an abnormal chest x-ray, is present. It has been their experience that striking improvement in several moribund patients has taken place when, during the course of operation, the pressure of suppurative mediastinitis was released.

Following a brief period for diagnostic studies and intravenous fluid therapy, thoracotomy with exposure and suture of the perforated esophagus, and drainage of the mediastinal and pleural spaces is indicated. It is important that thoracotomy be carried out on the side which clinically and radiologically appears to be the site of pathology. Although spontaneous esophageal rupture is more common on the left, it may occur on the right side. Irrigation of the mediastinal area of perforation and the pleural space also would appear to be indicated in an attempt to remove as much as possible of the foreign material.

A nasogastric tube should be passed into the stomach during this operation, and should be attached to suction to keep air and fluid from accumulating in the esophagus and stomach.

Comment

The medical profession's attitude toward this relatively rare catastrophe was one of apathy until the advent of modern chest surgery permitted direct surgical attack on the esophagus. Barrett[13] reported the first survival after thoracotomy and closure of the esophagus in 1946. In reviewing the literature through 1952, Derbes, et al,[14] found 157 reported cases of which 55 had been operated upon (thoracotomy and closure of esophagus) with a 64 per cent survival of those undergoing surgery.

As previously stated, the disease is probably most difficult to treat because of the difficulty of making the diagnosis. There are, however, several salient points which, if kept in mind, might help one to arrive at a correct diagnosis.

In most cases there is a history of vomiting and sudden onset of lower chest pain. A past history of ulcer disease should make one all the more suspicious of the diagnosis of rupture of the esophagus, particularly if the abdominal findings are not typical of perforated ulcer and an abnormal chest x-ray is reported in the absence of pneumoperitoneum. Three of the five patients treated at Hartford Hospital were known ulcer patients. Pyloric obstruction was thought to be the basis of the vomiting in the case reported here in detail.

The earlier the diagnosis is made and definitive surgery performed, the better the prognosis. If treated within forty-eight hours, the prognosis is quite good, but if there is an unduly prolonged interval between the occurrance of rupture and treatment, the mortality rate is quite high. An accurate diagnosis is all the more important in this group of patients as they are frequently subjected, as was the reported patient, to exploratory laparotomy with the mistaken diagnosis of perforated duodenal ulcer. Certainly an unnecessary major operation decreases the chances of survival of an already desperately ill patient.

Esophageal rupture with fatal outcome has been reported as a complication of major abdominal surgery by Gould, et al,[15] in two patients. An interesting facet of these cases is that both patients had Levin Tubes in place, supposedly functioning well at the time of rupture. This diagnosis should be kept in mind in evaluating the post-operative patient who suddenly becomes critically ill after an episode of vomiting.

There are few who would disagree with the concept of early thoracotomy once the diagnosis of esophageal rupture is made or seriously suspected. This seems to be adequately borne out by Derbes'[13] figures showing approximately 64 per cent survival of 55 patients treated with thoracotomy, closure of the esophagus and drainage as opposed to virtually a total mortality in the remainder of the 157 patients treated by other means.

Summary

1. A case of spontaneous or post-emetic rupture of the esophagus treated surgically at the Hartford Hospital is reported.

2. The major reason for the delay in the early surgical treatment of esophageal rupture is the failure to make the diagnosis.

3. A brief review of various aspects of the disease is presented. A plea is made for early direct surgical attack on the esophageal rupture.

REFERENCES

1. Derbes, V. J. and Mitchell, R. E.: The first translation of the classic case report of the esophagus from Hermann Boerhaaves' *Atrocis, Nec Descripti Prius, Morbi Historis,* Published in 1724. Bull. Med. Lib. Assoc., 43: 217, 1955.
2. Mackler, S. A.: Spontaneous rupture of the esophagus. Surg. Gynec. Obstet., 95: 345, 1952.
3. Overstreet, J. W. and Ochsner, A.: Traumatic rupture of the esophagus. J. Thor. Surg., 30: 164, 1955.
4. Derrick, J. R., Harrison, W. H., and Howard, J. M.: Factors predisposing to spontaneous perforation of the esophagus. Surgery, 43: 486, 1958.
5. Griffith, R. S.: Spontaneous rupture of the esophagus. Penn. Med. J., 35: 639, 1932.
6. Klein, L. and Grassman, M.: Rupture of the esophagus. Med. Bull., Veteran's Administration, 19: 277, 1943.
7. Boyd, D. and Eytinge, E.: Perforation of the esophagus: A complication of obstructing duodenal ulcer. Gastroenterology, 17: 103, 1951.
8. Samson, P. C.: Post-emetic rupture of the esophagus. Surg. Gynec. Obstet., 93, 221, 1951.
9. Kinsella, T. J., Morse, R. W., and Hertzog, A. J.: Spontaneous rupture of the esophagus. J. Thor. Surg., 17: 613, 1948.
10. Paulson, D. L., Shaw, R. R., and Kee, J. L.: Recognition and treatment of esophageal perforation. Ann. Surg., 152: 13, 1960.
11. Irvin, C. W., Jr. and Bunch, G. H.: Spontaneous rupture of the esophagus. Amer. J. Med., 17: 571, 1954.
12. Weisel, W. and Raine, F.: Surgical treatment of traumatic esophageal perforation. Surg. Gynec. Obstet., 94: 337, 1952.
13. Barrett, N. R.: Report of a case of spontaneous perforation of the esophagus successfully treated by operation. Brit. J. Surg., 35: 216, 1947.
14. Derbes, V. J. and Mitchell, R. E., Jr.: Rupture of the esophagus. Surgery, 39: 688, 1956.
15. Gould, E. A., Philbin, P. H., and Kerr, H. H.: Spontaneous rupture of the esophagus complicating major surgery. Amer. Surg., 25: 744, 1959.

Edith B. Jackson, M.D. And Yale Pediatrics

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Edith B. Jackson, M.D., Clinical Professor of Pediatrics and Psychiatry, retired recently ending an association with Yale which began in 1923. Speaking at a dinner in her honor, Dr. Milton Senn, Professor of Pediatrics and Psychiatry at Yale, Dr. Marion Putnam, pediatric psychiatrist and psychoanalyst formerly of New Haven, and now of Boston; Dr. Grover Powers, Professor Emeritus of Pediatrics at Yale; Erik Erikson, noted psychoanalyst; Dr. Albert Snoke, Director of Grace-New Haven Hospital, and Miss Kate Hyder, Associate Professor of Obstetrical Nursing at the University of Connecticut, told the stimulating story of Dr. Jackson's contributions to the treatment and prevention of emotional disturbances in children.

Dr. Jackson came to Yale in 1923, having graduated from Vassar College, and Johns Hopkins Medical School. She interned in medicine at Iowa City, and in pediatrics at Bellevue Hospital. Her interest in preventive pediatrics in those early days was already apparent when she became associated with Dr. Martha Elliot and Dr. Edwards A. Park in the New Haven Rickets Project sponsored jointly by the Children's Bureau and the Yale Department of Pediatrics. The data collected in this project, which had its headquarters in a house on Dixwell Avenue, served to demonstrate that rickets could be prevented on a community basis with the administration of cod liver oil and sunshine. Further studies done on the comparable group of children in Puerto Rico, demonstrated the efficacy of sunshine alone.[1]

Edith B. Jackson, M.D.

The intimate contact with families and children during these studies made Dr. Jackson aware of the need for the application of preventive principles in the behavioral aspects of child care. Conscious of the inadequacy of knowledge concerning the behavior of children and motivated to correct this, she prepared for study in this area by psychiatric training at Saint Elizabeth's Hospital in Washington and then at the Psychoanalytic Institute of Vienna, under the direction of Professor Sigmund Freud. While there, she assisted Dorothy Burlingham and Anna Freud in the establishment of an all day nursery school for very young children. This nursery, known as the Jackson Nursery, was the forerunner of the Hempstead nurseries in London,

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[1] Eliot, Martha M. and Jackson, Edith B.: Bone development of infants and young children in Puerto Rico. Am. J. of Dis. Child., Vol. 46, pp. 1237-1262, December, 1933.

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where the effects of war and family disruption on young children were studied during World War II. Dr. Marion Putnam speaking of the years when she and Dr. Jackson studied in Vienna, mentioned that in establishing this nursery Dr. Jackson made it possible for Anna Freud and her associates to observe and treat psychiatrically for this first time, infants and very young children. Prior to this time, it was believed to be impossible to work therapeutically with such young individuals.

Returning to Yale in 1936, Dr. Jackson assisted Dr. Putnam and subsequently became director of the child psychiatry unit in the Department of Pediatrics. With the enthusiastic support of Dr. Grover Powers, Professor of Pediatrics, this section, called the Child Welfare Research unit, was one of the first psychiatric units to be integrated with a University Pediatrics Department. Describing the development of this joint effort between the Pediatric and Psychiatric Departments, Dr. Grover Powers cited the following reports to the Corporation of Yale University by Dean Milton C. Winternitz who wrote in 1930 . . . "It is now planned to study the child's behavior at birth and to follow the individual so far as possible and advisable, and to give each child that enters the clinic the benefit of careful psychological as well as physical study." He later reported—"In pediatrics where a member of the staff of the Department of Psychiatry and Mental Hygiene has been assigned, the opportunity has proved to be far greater than was anticipated and it is believed that the extension of this cooperation to other clinical services will be equally fruitful."

Under Dr. Jackson's direction the Child Welfare Research unit added great strength and balance to the Department's objectives of a sound mind in a healthy body for all children. She always maintained an intimate contact with pediatric house staff and patients on the wards and in the newborn nursery. The interne's home-visit plan for mothers and their new infants established under her guidance, enabled scores of pediatricians to understand the problems of the first few weeks of parenthood in the home situation.[2] In addition, the opportunity to discuss with Dr. Jackson ways of helping the new mothers fulfill the responsibilities of parenthood embodied pediatric and psychiatric teaching in it's finest form.[3] A master at pointing out the basic psychological problems in a special situation, she was somehow always able to make her younger colleagues feel that they were the ones who had discovered the psychological points involved.

From 1946 until her retirement, Dr. Jackson directed the Rooming In Project, affectionately called RIP by most of her colleagues. (One mother once stated to her it meant "rest in peace" . . . as she described her contentment during her stay in this unit.) This project, served a three fold purpose: namely, service to mothers, fathers and infants, teaching experience for medical students, nurses, and physicians, and a research center for collecting data dealing with those aspects of parent child relationships which could be usefully applied to the daily practice of pediatrics. Pediatricians working with the Rooming In Project began their contact with the families by interviewing the mothers and fathers during the prenatal period. They learned to render thorough pediatric service both prenatally and after the birth of the infant at times when emotional factors were all important. As Erik Erikson said at the dinner, Edith Jackson was able to fulfill one of Sigmund Freud's greatest hopes, that is "to glean out of what we know of psychopathology, gains for normal psychology . . . to take what we have learned from sick lives and apply it to the very beginning of what we hope will be healthy lives."

Mothers, fathers, newborn infants, nurses, medical students, and graduate physicians all benefitted and learned from her meticulous concern for the physical and psychological welfare of patients. The concept of one nurse . . . i.e. "a mother and baby nurse," providing nursing care during the hospital stay was an innovation in nursing administration which stemmed largely from Dr. Jackson's and Miss Hyder's interest in improving nursing care. The growth of this plan throughout the country, as well as the increase in the number of Rooming In Units in maternity centers, reflects her influence on a wide spread basis. Typical of her concern about the mother's needs, was her constant insistance that a nursery be available for the babies when the mothers were resting and too tired to care for their infants. Fortunately, again due to her influence, this architectural pattern has been followed in most of the new Rooming In units constructed within the past decades.

Studies conducted by Dr. Jackson and Dr. E. H. Klatskin, Director of Research for the Rooming In Project, have greatly increased knowledge concerning child behavior. As Director, she received a constant stream of physicians, nurses, and hospital administrators visiting from all over the world, who sought guidance in improving their lying-in programs. Much of her published material is in response to the demands of visitors that she record her ideas and experiences in a permanent form.

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[2] Wessel, M. A.: The pediatric intern. Journal of Pediatrics, Vol. 29, pp. 651-654, November, 1946.

[3] Olmsted, R. W., Svibergson, R. I., and Kleeman, J. D.: Value of rooming-in experience in pediatric training. Pediatrics, May, 1949.

The request for reprints of her articles has always been great. The publication, *Management of Breast Feeding*[4] is in such demand, that nearly 4,000 reprints have already been mailed and requests are still being received.

Dr. Grover Powers, Professor Emeritus of Pediatrics, describing Edith Jackson, expressed eloquently the feelings of those who have been privileged to know and work with her as follows:

". . . I would point out that Dr. Edith Jackson in her own right is a crusader—a crusader for study and improvement in parent-child relationships. This has been the theme of Dr. Jackson's professional life played, of course, as a symphony with variations. A life such as hers refutes, I think, Boris Pasternack who says in his famous book, 'Don't you think you'd have to be a hopeless nonentity to play one role all of your life, to have one place in society, always stand for the same thing.'

"You realize that in all of these activities of service, teaching and research many hands, many minds and, if I may say so, many hearts were participants, many disciplines were concerned—medical and nursing education, social service, hospital administration, public health, psychology, obstetrics, psychiatry, pediatrics. To many workers belongs great credit for dedicated interest and service; but to no one so much as to our guest of honor. If all of this had been a game the title certainly would have been 'follow the leader!' I can speak with special knowledge regarding some fourteen fellows associated with Dr. Jackson in the Rooming-In Study; their gratitude for her gentle guidance in service, teaching and example is beyond measure. One has written to me as follows regarding Dr. Jackson: 'The fact that a child psychiatrist of her stature felt that this area was worthy of her time and study, emphasized to me the significance of the newborn period in relation to the development of the child's personality. Throughout my stay in Rooming-In I had many opportunities to observe this fact. I can only reiterate your thoughts when you said that this would be one of the greatest experiences of a young pediatrician.'

"Three of the Rooming-In fellows have become psychiatrists and at least nine hold academic positions in which their special training under Dr. Jackson in the social and psychological problems of obstetrics and pediatrics and parent-child relationships are heavily stressed.

"The impact of this program upon other personnel in the medical center—nurses, social workers, house officers in obstetrics, pediatrics and psychiatry must have differed only in degree from that of the Rooming-In fellows. And one must not forget parents, male and female! From reports and personal contacts I have the opinion that many parents are happy and grateful for their Rooming-In experiences. Let us hope time and careful follow-up studies will furnish valuable relevant data concerning the children of this project.

"Also in regard to the Rooming-In Study I would like to stress its national significance as well as its local impact. There were fine Rooming-In developments in other medical centers such as those in Washington under Drs. Preston McLendon and John Parks and at the Cornelian Center in Detroit under Dr. John Montgomery and Genevieve Trainham. Dr. Jackson gave generously of her time and thought to lectures and conferences where interested persons from many institutions and from diverse disciplines foregathered for discussions and exchange of ideas and criticisms. To this type of sharng of thought and experiences of Dr. Jackson has added membership on the boards of International Social Service and the New Haven Family Service Society. And, I may add, everyone here can testify to many a delightful socio-professional salon in the home on Perkins Road, Woodbridge, Connecticut!

"Many years ago Cardinal Newman wrote a book of essays on University Education in one of which he enumerated the characteristics of a gentleman. Since they are equally appropriate to a lady I shall change the gender and so conclude this tribute of respect, gratitude and affection to Edie Jackson.

"'It is almost a definition of a lady to say she is one who never inflicts pain. The true lady avoids whatever may cause a jar or jolt in the minds of those with whom she is cast;—all clashing of opinion, or collision of feeling, all restraint, or suspicion, or gloom, or resentment; her great concern being to make everyone at their ease and at home. She has her eyes on all her company; she is tender towards the bashful, gentle toward the distant, and merciful toward the absurd; she can recollect to whom she is speaking; she guards against unseasonable allusion, or topics which may irritate; she is seldom prominent in conversation, and never wearisome. She makes light of favours while she does them, and seems to be receiving when she is conferring. She never speaks of herself except when compelled, never defends herself by a mere retort; she has no ears for slander or gossip, is scrupulous in imputing motives to those who interfere with her, and interprets everything for the best. She is never mean or little in her disputes, never takes unfair advantage, never mistakes personalities, or sharp sayings for arguments, or insinuate evil which she dare not say out. From a long-sighted prudence she observes the maxim of the ancient sage, that we should ever conduct ourselves toward our enemy as if he were one day to be our friend.'"

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[4] Barnes, G. R., Lethin, A. N., Jr., Jackson, E. B., Shea, N.: Management of breast feeding. J.A.M.A., Vol. 151, pp. 192-199, January, 1953.

Many individuals achieve great knowledge and clinical skill. Few, however, are able to effectively bring the efforts of pediatricians, obstetricians, psychiatrists, nurses, and hospital administrators together into a coordinated plan of action which embodies this knowledge and skill. The growth and acceptance of Rooming In plans throughout the country reflects the wide influence of Edith Jackson's leadership. Countless colleagues and students learned under her energetic guidance that consistent detailed concern about a patient's psychological welfare results in marked improvement in the attitudes of all hospital and medical personnel involved in patient care. This method of teaching, too often missing in this mechanical age, is only one of Edith Jackson's many contributions. Her consistent leadership over the years places her among the truly dedicated teachers of our time.

BIBLIOGRAPHY

1. Bone development of infants and young children in Puerto Rico (with Dr. Martha M. Eliot) Am. Jour. Dis. Child., 1933.

2. Treatment of the young child in the hospital. Am. Jour. Orthopsychiatry, Vol. XII, January, 1942.

3. Prophylactic considerations for the neonatal period. Am. Jour. Orthopsychiatry, Vol. XV, January, 1945.

4. Should mother and baby room together? Am. Jour. Nurs., Vol. 46, January, 1946. Republished in Childhood and Youth —A Digest of Child Devolpment, London, 1948.

5. The rooming-in plan for mothers and newborn infants (with Dr. Herbert Thoms), Conn. State Med. Jour., Vol. XI, March, 1947.

6. Theoretic considerations and parental observations relating to unified hospital care of mother and infant. Proceedings of Third American Congress on Obstetrics and Gynecology, 1947. Reprinted as "Rooming-in" Gives Baby a Good Start," The Child, April, 1948.

7. Clinical sidelights on learning and discipline. Am. Jour. Orthopsychiatry, Vol. XVII, October, 1947.

8. A hospital rooming-in unit for four newborn infants and their mothers (with Dr. Richard W. Omsted, Dr. Alan Foord, Dr. Herbert Thoms, and Miss Kate Hyder, R.N.), Pediatrics, January, 1948.

9. General reactions of mothers and nurses to rooming-in, Amer. Jour. Public Health, Vol. 38, May, 1948.

10. The rooming-in plan for mothers and infants (with Dr. Thoms, Dr. Lyman M. Stowe, and Dr. Frederick W. Goodrich), Am. Jour. Obst. & Gyn., Vol. 56, October, 1948.

11. Family centered maternity and infant care, report of the committee on rooming-in of the Josiah Macy, Jr. Foundation Conference on problems of infancy and early childhood, *Supplement I to Problems of Infancy and Childhood Transactions*, Fourth Conference, 1950. (Edited by Edith B. Jackson, M.D., and Genevieve Trainham, R.N., M.A.).

12. Development of methodology of parent-child relationship study in a clinical setting, (with Evelyn H. Klatskin, Ph.D.), *The Psychoanalytic Study of the Child,* Vol. V, 1950.

13. Pediatric and psychiatric aspects of the Yale rooming-in project, Conn. State Med. Jour., Vol. XIV, July, 1950.

14. Choice of rooming-in or newborn nursery: analysis of data from prenatal screening interviews of 1251 mothers, relating to their choice of hospital accommodation for their infants in a rooming-in unit or in the newborn nursery, (with Ethelyn H. Klatskin, Ph.D., and Anton N. Lethin, M.D.), Pediatrics, Vol. VI, December, 1950.

15. Home adjustment of rooming-in and non-rooming-in mothers, (with Nilda Shea, R.N., and Ethelyn H. Klatskin, Ph.D.), Am. Jour. Nurs., Vol. 52, January, 1952.

16. Early child development in relation to degree of flexibility of maternal attitude, (with Ethelyn H. Klatskin, Ph.D., and Louise C. Wilkin, M.S.), Psychoanalytic Study of the Child, Vol. VII, 1952.

17. Management of breast feeding, (with Dr. George R. Barnes, Jr., Dr. Anton N. Lethin, Jr., and Miss Nilda Shea, M.N.), Jour. Am. Med. Assoc., Vol. 151, January, 1953.

18. The development of rooming-in at Yale. Yale Jour. of Biol. & Med., Vol. XXV, June, 1953.

19. Paroxysmal fussing in infancy, sometimes called "colic," (with Dr. Morris A. Wessel. Dr. John C. Cobb, Dr. George S. Harris, Jr., and Miss Ann C. Detwiler, B.A.), Pediatrics, Vol. XIV, November, 1954.

20. Two papers in volume one. Papers and discussions, mental health and infant development, proceedings of the International Seminar held by the World Federation for Mental Health at Chichester, England; Edited by Kenneth Soddy, M.D., Published by Routledge and Kegan Paul Ltd., London, 1955.

21. Methodology of the Yale rooming-in project on parent-child relationship, (with Ethelyn H. Klatskin, Ph.D.), Am. Jour. Orthopsych., Vol. XXV, January and April, 1955.

22. The influence of degree of flexibility in maternal child care practices on early child behavior, (with Ethelyn H. Klatskin, Ph.D., and Louise C. Wilkin, M.S.S.), Am. Jour. Orthopsych., Vol. XXVI, January, 1956.

23. Statistical report on incidence and duration of breast feeding in relation to personal-social and hospital maternity factors, (with Louise C. Wilkin, M.S.S., and Harry Auerbach, M.P.H.), Pediatrics, Vol. XVII, May, 1956.

24. Mothers and babies together, Parents' Magazine, October 1947 issue.

25. Do You Really Understand "Self-demand?", Baby Talk Magazine, 1950.

CONNECTICUT MEDICINE

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George Blumer, M.D.
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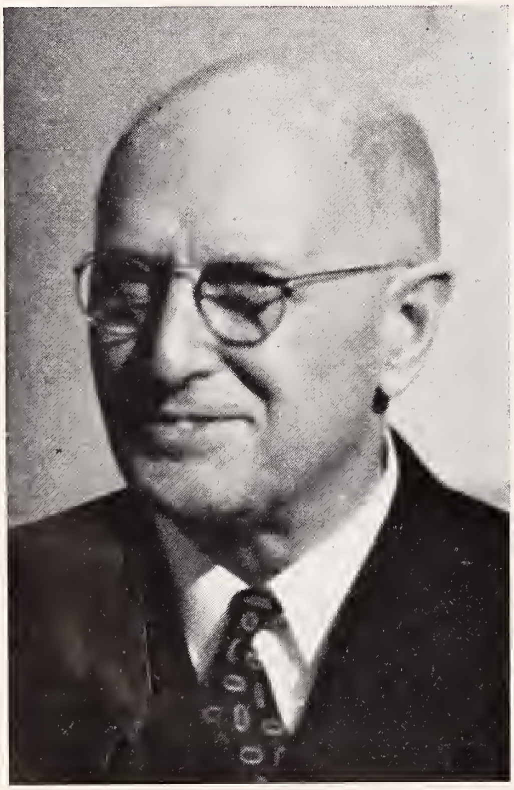

Dr. George Blumer, former dean of the Yale University School of Medicine from 1910 to 1925, died Wednesday morning, May 16 at his home on Balboa Island, California. He was 90 years old.

This ended a career that was marked by an extraordinary range of great accomplishments in medicine, in higher education and in efforts to improve the character of medical education in this country, in which he was an important leader. He turned with great vigor to the task of remaking the Yale Medical School in 1910.

Dr. Blumer had retired 20 years ago after maintaining an office on Whitney Avenue in New Haven for 35 years. His home was at 841 Whitney Avenue.

He was born with a caul at 11:40 p.m. just missing St. Patrick's Day by twenty minutes in Darlington County, Durham, England, on March 16, 1872, the son of John G. and Julia Walford Blumer. The Blumers came to this country when George Blumer was 14 years old, and settled in Sierra Madre, California where his father engaged in the citrus industry.

George Blumer was sent back to England for his pre-college training but returned to the United States to receive his M.D. degree from Cooper Medical College, San Francisco in 1891. He interned in the City and County Hospital, San Francisco in 1892-93 and was a postgraduate student in Johns Hopkins Hospital from February to June, 1893. He was a surgical house officer in Johns Hopkins Hospital, 1894-95, under Dr. William S. Halstead, medical house officer in 1895-96, under Drs. William Osler and W. S. Thayer, and assistant in pathology under Drs. William H. Welch and Simon Flexner, 1896-97. In 1896 he was appointed Director, Bender Hygienic Laboratory, Albany, New York, where he remained until 1903. He was Professor of Pathology and Bacteriology at Albany Medical College (Union) New York, 1902-03. He was Associate Professor of Pathology, Cooper Medical College 1903-04, and Assistant in Medicine, University of California Medical School, 1905-06, when he was named the John Slade Ely Professor of the Theory and Practice of Medicine at Yale University Medical School.

In 1910 he became the Dean of the Medical Faculty at the Yale Medical School and continued in that position until 1920. In 1920 he was named David P. Smith Professor of Clinical Medicine in which position he continued until 1939 when he retired from active teaching at Yale with the rank of Professor Emeritus. George Blumer stated "I felt I could not be happy in the full time setup and was not the research type needed for that job." Relieved of his administrative duties he returned to teaching in the wards where his great knowledge, his deep insight and his friendliness attracted students, faculty and visitors. He greatly enjoyed at last the conviviality and devotion of his colleagues and developed a wide consultative practice. He participated in the New Haven Board of Education, acted as a trustee of the School for Feeble Minded in Lakeville and later at the Mansfield State Training School for feeble minded and epileptic.

Dr. Blumer also served as a consulting physician at the former Grace and St. Raphael Hospitals, as well as at New Haven, Meriden, Milford and Middlesex Hospitals. Upon his retirement he became a consulting physician at Huntington Memorial Hospital, Pasadena, California.

Throughout this period he was actively engaged in writing, especially the preface to the third edition of *Forchheimer-Therapeusis of Internal Diseases* and editor and contributor to a three volume excellent text on *Blumer's Bedside Diagnosis.* The many wonderful editorials he wrote for this JOURNAL are gems of medical wisdom and his long list of contributions can be found in the issues of CONNECTICUT MEDICINE over the many years, even to the present day, under two letters, "G.B."

In his dealings with his colleagues and patients he exemplified qualities of simplicity and humanity that are traits of a truly great man.

He was a member of the American Medical Association, a Fellow of the American College of Physicians, the American Association for Clinical Investigation, New England Academy of Medicine, New York Academy of Medicine and served as president of the Connecticut State Medical Society in 1920, and as president of the New Haven Medical Association in 1923.

In March of 1961, in honor of his 89th birthday, CONNECTICUT MEDICINE devoted a special issue, "The George Blumer Appreciation Issue" in which the editor had this to say about his accomplishments.

"The school registration had dwindled to nine for our incoming class, but the requirement of a college degree for preparation to study medicine was the permanent rule for Yale Medical School, which was carried through quietly but with fortitude by its author, Dr. Blumer. It was a new philosophy in medical education brought on by Abraham Flexner in Johns Hopkins. Yale, having obtained George Blumer, was one of the first to feel the fresh breezes of the future which were to sweep away the old ashes of the medical past and in the words of Ezekiel '37, 'add flesh and sinews and skin to the old bones.' Medicine at Yale prior to George Blumer was suffering from a serious disease producing dwindling of inner resources. Medicine at Yale when he left the helm was a lusty infant with prodigious potentialities as the present great center of medical research and teaching eloquently attests.

"George Blumer commanded the Yale Medical School in a period of transition. It was a great period in retrospect although it experienced growth without glamour. The change in entrance requirements was a revolution, but it was so quiet that no one knew it, and the quietness was accentuated by the very diminutive student body. But the teaching was carried on by experts like Ferris, Flint, Slemons, Tileston, Bartlett in Pathology, Smirnow in Microbiology, and the Dean himself. The bedside teaching was of the highest quality. Astute clinicians taught physical diagnosis, and the bedside diagnosis was probably not excelled anywhere. It was in the true Oslerian tradition.

"It was the era preceding the one in which experimental medicine came into its own. It was a period of therapeutic nihilism and encyclopedic learning. Without doubt George Blumer was the last of the encyclopedists who gracefully gave way to the new era of experimental medical science that was pressing hard upon the educational institutions. He saw the wave of the future and thought it was good. He began collecting funds for a new plant and a new full-time faculty which he himself knew must replace him. Undaunted, he followed his vision, collected several million dollars and launched the new administration in 1920. This type of activity certainly exalted his goodness, his dignity, his selflessness and his wisdom in recognizing his rightful place in medical education. His was a caretaker government, but he initiated all the reforms which were to revolutionize medical education at Yale. A true believer in democracy, he prepared the 'government' well for its successors, the young men of a new generation. He thus exhibited, and by example, exalted, man's goodness, dignity and belief in man. George Blumer at Yale initiated growth without glamour."

Connecticut is proud of Dr. George Blumer as one of its illustrious sons and its heritage is permanently richer because of him.

His late wife was the former Mary Louise Bradley, daughter of the late General Edward E. Bradley, adjutant general of Connecticut under Governor Luzon B. Morris.

He leaves four daughters, Mrs. Mary Kimberly Blumer Lawrence, wife of Professor Ernest C. Lawrence of the University of California, one of the early developers of the cyclotron and a Nobel Prize winner; Mrs. Elsie Walford Blumer McMillan, wife of Professor Edwin M. McMillan of the University of California, discoverer of plutonium; Mrs. Bertha Bradley Blumer Prann, wife of Lt. Commander John R. Prann, USNR of Manchester, and Mrs. Margaret Wheatley Blumer Biles, wife of Richard H. Biles of San Gabriel, California.

Louis H. Nahum, m.d.

EDITORIALS

The Thymus — A Master Gland

A glance at even the most recent textbooks of physiology shows almost no information on the thymus. "The thymus gland is a rudimentary lymphoepithelial organ of unknown function." "The thymus has not yet been proved to secrete any hormone of physiological significance." It contains a large number of lymphogenous cells indicating that the thymus is closely related to the lymphogenous system and is actually a part of it." It is clear the gland has puzzled some scientists but they have generally passed it by untroubled by its mystery.

Certain facts are known such as that it triples its weight in the first years of life and then it begins to shrink again until it is reduced to its size at birth. This made it appear that it may be a vestige of an earlier stage of evolution and that it served no useful purpose. In a recent address at Atlantic City accepting a $1,000 award from Parke, Davis & Co., Dr. Robert A. Good, Research Professor of Pediatrics at the University of Minnesota, reported some remarkable studies on 125 cases of a congenital defect in children—agammaglobulinemia. First of all he encountered an unexpectedly high incidence of a benign thymoma. Astonishingly enough these patients also showed a high incidence of rheumatoid arthritis and related diseases. Finally, the patients also had a higher than normal rate of leukemia and Hodgkin's disease. This association of lack of gammaglobulin with rheumatoid arthritis, Hodgkin's disease, leukemia and an abnormality of the thymus suggested to Dr. Good that perhaps they have a common origin due to a basic defect of the thymus.

This is not the first time that attempts have been made to link up the thymus with certain disease states. In 1917 Bell reported the case of a man who died of myasthenia gravis who was found to have a benign tumor of the thymus at autopsy. He also referred to ten additional cases of a similar nature. This led to thymus removal in patients with myasthenia gravis, but not to experiments to test this hypothesis in animals. It has also been found enlarged in adrenal cortical insufficiency, acromegaly, rickets, and hyperthyroidism. But there the observations remained. No effort to explain the relationship was undertaken, possibly because of the general medical dogma that the thymus was a vestigial gland or that it was nothing different than the other lymphoid structures of the body.

Dr. Good was in a different mood. Homotransplantation was in air. Medawar and Burnet had just received the Nobel prize for their studies on tissue reaction to foreign substances. Dr. Good and his associates had reported three communications on auto antibodies. He was willing to believe that perhaps the thymus was not a vestige but played an important role and that the association of agammaglobulinemia, with thymus disease was no accident. But he went further. Instead of leaving it there he proceeded to formulate a hypothesis which could be put to the experimental test. The hypothesis was that there was a basic defect in the thymus as a result of which the body becomes impotent against foreign substances. This implies that the normal function of the thymus might be to "train" lymphoid cells and then send them to various parts of the body to guard against invaders.

Once the hypothesis was formulated it was not difficult to devise experiments to test it. He removed the thymus from rabbits and mice soon after birth and found that it cripples them immunologically. When they grow up they cannot form antibodies! He then studied when the optimal time might be for removal of the gland to reveal the phenomenon in its most striking form. Timing proved crucial since removal of the thymus in the first or second day was much more effective in preventing immunological development than if the gland were removed after the fifth day. Such crippled animals could later accept skin grafts even from totally unrelated strains of mice or rabbits. These experiments proved that it is in fact the thymus that sets up the immunological barrier against tissues and organs from other animals. But even more significant, a collaborating British group under the direction of Dr. Jacques F. A. P. Miller of the Chester Beatty Research Institute in London, found that grafts of thymus from a different strain of mice into a thymus-less animal not only restored the recipients immunological reactivity, but also rendered the animal capable of accepting skin grafts from the thymus donor that normally would have been rejected!

It is clear that the thymus is a master gland that lays down early in infancy the body's all important immunity mechanism. With this the body gains the ability to defend itself against bacterial infection, and against invasion of foreign substances incompatible with the body's well being. In this way, the body learns to reject as foreign invaders, grafted tissue, transplanted organs from another individual except in the case of identical twins whose organs are identical immunologically. As Dr. Good said "We are getting much closer to understanding the whole process of immunity and its relation to disease."

The way has been opened to the time when transplantation of organs from non related individuals will become possible. The work has opened a new approach to eradication of such diseases as rheumatoid arthritis, leukemia and Hodgkins disease.

L.H.N.

REFERENCES

1. E. T. Bell: Tumors of the thymus in myasthenia gravis. J. Neur. & Ment. Dis., 45: 130, 1917.

2. Seybold, W. D., McDonald, J. R., Clagett, O. T., and Good, C. A.: Tumors of the thymus. J. Thoracic Surg., 20: 195, 1950.

What Stops a Viral Infection?[1]

The ordinary virus is a helix of nucleic acid surrounded by a protein coat. When it infects a cell, it multiplies rapidly until the cell is destroyed and the viral particles are freed to invade other cells. Slowly a humoral antibody forms which prevents "whole" virus spread and the infection comes to a halt. After poliomyelitis and yellow fever and many other infections individuals become permanently immune. A "killed" vaccine also protects against whole virus infections through arousing in the host specific antibodies. But these are antibodies to the protein coat of the virus and not to the nucleic acid core.

A new dimension in virology was discovered when "naked" or freed viral nucleic acids were shown to be infectious and not affected by anti-sera which can neutralize the whole virus.[1] They were first discovered in plant viruses, then in many others including bacterial and viral induced tumor disease. In Esherichia coli when a phage—a viral nucleic acid is injected, the progeny virus, released when the cell is lysed consists of both whole virus particles and viral nucleic acid. The same phenomenon is true for animal viruses such as equine encephalitis virus. It is possible to infect chick allantoin by these free nucleic acids. This means they can enter, be free in a cell and multiply. However, if the allantoin is first treated with nuclease, the viral nucleic acids will not enter and infect the cell.

An immune serum can neutralize whole virus but not infectious nucleic acids, so that an immune serum can be infectious if it contains free nucleic acids. We find just such a situation in the persistence of infective agents for long periods of time in the blood of infected subjects as in serum hepatitis or infectious anemia of horses. In viral hepatitis there are long periods of viremia preceding the onset of symptoms up to fifty days and in some cases symptoms do not develop up to three to four months after exposure. If there were a protein component of this agent antibody could be expected to form and neutralize the agent in this time interval. Even gammaglobulin from convalescent patients has failed to prevent infection with known infective material. So we have evidence for an immunologically unreactive agent which is stable for long periods of time. We are forced to the assumption that the viral nucleic acid must be protected from the nucleases of the blood by a non-antigenic membrane, perhaps a lipid, or else that the infective nucleic acid is released by tissues more rapidly than it is being removed or digested, or that nucleases of the blood are suppressed by inhibitors.

A remarkable phenomenon bearing upon this question is found in a disease like herpes simplex in which some individuals suffer recurrent episodes which may be initiated by unusual stresses including fever. Such individuals have neutralizing antibodies and this rules out re-infection from an external source. What keeps the primary infection submerged? Is the flare-up caused by an altered control mechanism? If nuclease in the blood were to rise and fall, then the infection could flare up. In fevers, white blood cells, which carry anti-nucleases, are destroyed, liberate nuclease inhibitors and the barrier to infectious nucleic acids disappears allowing the disease to reappear. Thus the destruction of nucleic acids by nucleases might serve as a defense mechanism, while inhibition of nuclease activity would open the gates to infection.

One problem that still requires explanation is that of permanent immunity after viral infections. It has been suggested that there is a low level infection maintaining a stimulus for antibody formation. But how can an infection be maintained in the presence of antibody? Perhaps if the low level infection were due to free nucleic acids liberated by cells as well as whole virus, then the whole virus would be rapidly neutralized by humoral antibody but released nucleic acids could infect a few susceptible cells and thus maintain the infection.

We have seen above that two mechanisms can stop virus infections, humoral antibody against the whole virus, and serum nucleases which can rapidly destroy the free viral nucleic acids. Thus susceptibility to nuclease action also affords an explanation to the hitherto considered anomolous conditions like serum hepatitis and herpes simplex.

L.H.N.

REFERENCE

1. Herriott, R. M.: Infectious nucleic acids, a new dimension in virology. Science, 134: 256, July 28, 1961.

Drug Idiosyncracy

When we administer a drug to a patient, his body disposes of the drug by a predictable series of biochemical or physiologic reactions, most of which are now known for many commonly used drugs. The reactions are enzymatic in nature and require the presence of specific enzymes to successfully carry out essential steps in detoxification. Since enzymes are protein in nature and are formed only as a result of the presence of a particular gene in the genetic apparatus, the absence of a necessary enzyme could well lead to serious complications when certain drugs are administered. An example would be those patients who exhibit episodes of hemolytic anemia after the administration of any one of a variety of drugs. Dern *et al*[1] studied this phenomenon in patients who responded with a hemolytic effect after receiving primaquine. They showed that the erythrocytes of those individuals who had experienced drug induced hemolytic reactions contained a definite reduction of the normal amount of glutathione and this in turn was traced to a deficiency of an enzyme glucose -6- phosphate dehydrogenase in the red cells.[2] People with such enzymatic deficiency in red cells were also found to be sensitive not alone to primaquine but to sulphanilamide, acetanilid, phenacetin, nitrofurantoin, napthalene and large doses of aspirin. Those patients who developed a hemolytic reaction after eating fava beans also showed a deficiency of the same enzyme in their red cells. In addition even "normal" relatives of such patients also showed a high incidence of glutathione instability.

Child *et al*[2] carried the investigation further by showing parent to child transmission of the enzyme defect for 2—3 generations. Furthermore, he noted the deficit more often in males than females and after a study of sixteen families suggested the hypothesis that the gene is carried in the X-chromosome, is therfore sex-linked and is readily found in males since they have but one X-chromosome. Females who have two X-chromosomes exhibit varying degrees of deficiency if only one of the X-chromosomes is deficient in the necessary gene.

Now that a glutathione stability test is available, it is possible to detect individuals prior to a hemolytic crisis. It has also made possible the study of the degree of defectiveness in different population groups. It is therefore informative to find that 15 per cent of the American negro males and 2 per cent of the females show this defect. It is very rare in caucasian and western peoples and absent in Ashkenazi Jews. Appreciable frequency of the defect occurs in individuals of Greek and Italian ancestry and has been found to be present in 20 per cent of Israeli Jews.[4]

The existence of abnormal sensitivity to barbiturates has been well documented in patients with hepatic porphyria in whom paralytic reactions, some fatal, have occurred during barbiturate anesthesia.[5] Kritchman *et al*[6] has pointed to dangers in patients with familial dysautonomia, when given thiopental sodium and tribromethanol (avertin). Such patients have defective genetic equipment in which loss or alteration of a single enzyme may have widespread and diverse effects. The victims are incapable of carrying out some essential step such as detoxification of a specific radicle or may react otherwise in an unpredictable manner.

It is obvious with such large numbers of drugs being made available to medicine, that we urgently need information that will help us to identify individuals, likely to possess specific drug sensitivities in order to prevent untoward reactions. Until biochemical tests like the glutathione instability test become available we can only be alert to the possibility of drug idiosyncracy, and search carefully in a patient's family history for clues to genetic defects.[7]

L.H.N.

REFERENCES

1. Dern, R. J., Weinstein, I. M., Leroy, G. V., Talmadge, D. W., and Alviny, A. S.: The localization of the drug-induced hemolytic defect in primaquine-sensitive individuals. J. Lab. & Clin. M., 43: 303, Feb. 1954.

2. Gross, M. T., Hurwitz, R. E., and Marks, P.A.: An hereditary enzymatic defect in erythrocyte metabolism: glucose-6-phosphate dehydrogenose deficiency. J. Clin. Invest., 37: 1176, Aug. 1958.

3. Childs, B., Zinkham, W., Browne, E. A., Kimbro, E. L., and Torbert, J. V.: A genetic study of a defect in glutathione metabolism of the erythrocyte. Bull. Johns Hosp., 102: 21, Jan. 1958.

4. Szeinberg, A., Sheba, C., and Adam, A.: Selective occurrence of glutathione iristability in red blood corpuscles of the various Jewish tribes. Blood, 13: 1043, Nov. 1958.

5. Dean, G.: Porphyria. Brit. M. J., 2: 1291, Dec. 12 1953.

6. Kritchman, M. M., Schwartz, H., and Papper, R. M.: Experiences with general anesthesia in patients with familial dysautonomia. J.A.M.A., 170: 529, May 30, 1959.

7. Herndon, C. Nash: Basic contributions to medicine by research in genetics: J.A.M.A., 177: 695, Sept. 9, 1961.

Photosensitivity Reactions To Drugs

Elsewhere in this issue is an article reprinted from the *Medical Letter* of July 7, 1961, in "Photosensitivity Reactions To Drugs." Two events have made it necessary to bring this message to the medical profession. One is the sun-worship of the last two decades which has led to increasing areas of the body being subjected to prolonged exposure to the sun's rays before adequate tanning has occurred. The other is the increasing use of drugs which are capable of inducing photo-sensitivity.

It is well known that patients with discoid lupus, if exposed to much sun may develop fulminant dissemination of the disease. Similar dangers exist for other collagen diseases. Kampmeier[1] described a patient who had experienced a prolonged exposure to the arc of a 20″ electrode in an electric furnace and who developed a case of dermatomyositis directly thereafter and Turner[2] described a similar case after a day in the sun on the beach two weeks previously.

In a recent symposium[3] on psoralens much accumulated information on the biochemical and physiological effects of sunlight has been brought together. Here we find reviewed light which catalyze photochemical reactions, the chemistry of melanin, light energy transferred to carotenoid pigment, proteins which transfer light energy to conjugated dyes which can pick up energy and transfer this to protein.[3] It appears that the erythema caused by certain wave lengths of light is due to their absorption by normal constituents of the cell like tyrosine, and trytophan and that the vascular effects of a single moderately severe erythema producing exposure to ultraviolet light can last from 4-15 months. As Daniels says[4] "we are playing for keeps in ultraviolet effects." He reviewed the visible and ultraviolet effects in humans on vision, heating, synthesis of Vitamin D and certain unexplained effects of lowering blood pressure and pulmonary hemorrhage in the tuberculosis patient. Out of the Symposium came a list of natural photoabsorbers such as the aminoacids tyrosine, phenylalamine, tryptophan and possibly histidine. Also riboflavin, carotenoid pigments and the "energy trap" melanin.

Since relatively simple chemical reactions can be photosensitized by naturally occurring chemicals, it is not surprising that biological systems can also be sensitized by various other chemical substances. These may occur as abnormal metabolites or be ingested as part of the diet or as the Medical Letter points out be given as drugs. Of these numerous ones have already been described especially phenothiazines, sulfonamides, chlorothiazides and many antibiotics.

Fowlks[5] has summarized his review in the symposium by saying that an activated photosensitizer may result in[1] chemical combination of a photosensitizer with a sensitive cell constituent.[2] Oxidation of a sensitive cell constituent and[3] indirect excitation of a cell constituent which through chemical changes causes inactivation of vital cellular activities. If a damaged cell is able to repair the damage, the effects will subside. If a balance exists between the amount of damage to cellular components and the ability of the cell to repair that damage, heterologous proteins may be continually formed and set up an autoimmune reaction causing a collagen disease. Non-reparable damage particularly to certain nucleoproteins would lead either to immediate death of the cell or delayed death or a mutation. It is this last possibility that could lead to skin cancer. It is thus clear enough that sunlight or portions of its spectrum may be a most potent agent of injury.

It is time for the physician to use his influence to call a halt to the sunworship cult, and to remember that many of the drugs he uses in medicine are photosensitizers and that patients receiving them should be especially warned against over exposure to sunlight or ultraviolet light.

L.H.N.

REFERENCES

1. Kampmeier, R. H.: Collagen diseases—unanswered questions on pathogenesis and etiology. Arch. Int. Med., 106: 753, Dec. 1960.

2. Turner, J. C.: Dermatomyositis: A study of three cases. New England J. Med., 216: 158, 1937.

3. Proceedings of a symposium on psoralens and radiant energy. G. Invest. Dermat., 32: 132, Feb., Pt. 2, 1959.

4. Daniels, F., Jr.: The physiological effects of sunlight. J. Invest. Dermat., 32: 147 (Feb. pt. 2), 1959.

5. Fowlks, W. L.: The mechanism of the photodynamic effect. J. Invest. Derm., 32: 233 (Feb. pt. 2) 1959.

THE PRESIDENT'S PAGE

The barbs which have been thrown out against physicians and the medical profession in the past two years are sharp enough to cause deep reflexion by those who possess a humanitarian nature. Why such blasts against the physicians who have by their sacrifice and efforts made possible the highest status of health in any nation? Do not people appreciate health? It appears as a paradox in a country rich in resources and with a capacity to care for those in need without causing any humility or financial privation. In order to stimulate the mental activity of thinking people the exposure of a few real facts are necessary.

Who are the persons so vigorous in their accusations against medicine? A few are physicians but most of the antimedical personnel are those who know little of medicine. A few physicians criticize the A.M.A. for not giving due consideration to problems related to the government. They refer to conditions of twenty and thirty years ago. We are concerned with problems of today. We are not responsible for what our grandfathers did. These physicians believe themselves to be well informed; but are not willing to participate in organizational medical programs beyond their local and speciality groups. They have been unwilling to sacrifice time for the welfare of others in the profession. They are not keen to care for charitable cases in their own community. They are interested in their own little circle of practice, and have little interest in the American Medical Association. The non-medical groups speak and cause to be printed ideas hostile to the medical profession displaying the doctors as a bunch of cut throats, money grabbers and use all sorts of phony names. They alienate the physicians as a whole but brag about their wonderful family doctor. How paradoxical can some inconsiderate people become?

One of the college presidents in the East addressed the graduating class on the subject of "Soft Morals." This country was founded by men of stern moral virtues exemplified by their profound understanding of politics and their clear thinking. Have we lost the very foundation on which the United States rests? Must the physician heal the moral illness as well as the body illness of our people? Can we convince the two groups mentioned above to realize real facts and help them to obtain an honest interpretation of the current arguments between politics and medicine?

The A.M.A. has officers who are able, broad minded, unselfish, straightforward men and who are intelligently fighting for the good of the lay people as well as for the medical profession. They clearly point out that medicine by compulsion has been found wanting; that some form of voluntary medical plan is naturally the plan to promote, because it effects a better espirit de corps among the well to do and the needy and that after all it is the most economical.

Clyde L. Deming, M.D.

FROM THE GENERAL MANAGER'S OFFICE

William R. Richards, m.d., *General Manager*

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Utopia Or Nirvana?

Seems like most folks nowadays are so wrapped up in their own problems they just don't have time to listen to other people's. "Stop bothering us with *your* King-Anderson bills!", they're likely to tell us, somewhat sharply, "We're having enough trouble just getting up *our* second-quarter tax installment!" It's pretty discouraging, sometimes.

But it looks like things may soon be a little brighter for all chronic worriers. Fact is, there's an outfit being formed in New Haven which will take care of our worries for us. A pilot Ford Foundation venture, called "Opening Opportunities," is officially on the move toward eliminating most of the sweat from day-to-day living—at least for those lucky folks who call the Elm City home. For the present, of course, only a skeleton crew of workers is getting down to business but it is expected that their studies will point out a pressing need for the setting up of twenty or so new, "dynamic" government agencies—each with a full-time director and paid staff—to regulate just about every aspect of living for us. Once things get under way, they claim, almost no one will ever again have to make a decision for himself.

They're figuring to take over just about everything—legal aid (free lawyers and bail money), medical care (a team of specialists to look after us, right in our own house), physical fitness for the young folks (not just while classes are in session, but even "after school and during Summers"), communal services (calling on "newcomers" and organizing "neighborhood groups") and so on. They don't intend to leave very much to chance, it appears.

Some of their objectives seem pretty clear, but a couple of them baffle us just a little. For example, we've read through this one several times without really feeling we got the message: "Special effort will be made to apply the knowledge of related disciplines to the problems of community change and opening opportunities. Broader synthesis will be attempted so that all variables in a complex, urban community will be better understood." That one's going to need watching, we think. Sounds just a teeny bit out of this world!

So it looks like we might still have something to furrow our brows over, especially if this "blueprint for better living" (as it's called) doesn't turn out to be *all* beer and skittles. What's going to happen at our house, for instance, if the little woman gets one of her "Broader Synthesis" application forms returned to her, stamped DISAPPROVED in big two-inch letters? Say she's asking permission from the agency to grow old-fashioned purple petunias in the back yard and they tell her "the variables" work out so it's got to be hybridized red marigolds or nothing. We suppose most of us could learn to put up with being "organized into neighborhood groups" after awhile, and having the kids jump up in the middle of dinner to do compulsory deep-breathing exercises, but our better half has always *loved* those darned old purple petunias so! Saves the seed from one year to the next.

Now, she may just make up her mind she isn't going to settle for some new-fangled strain of marigold in her garden—not without putting up a fight, leastwise. And if she does, you can bet your bottom dollar living with her isn't going to be very "dynamic" for any of us—not very dynamic at all!

W.R.R.

COUNCIL MEETING

Wednesday, May 23, 1962

Preliminary

The first meeting of the Council for 1962-63 was called to order by the President, Clyde L. Deming, at 2:10 P.M. After introducing all members of the Council present and offering certain well-phrased personal observations as opening remarks, Dr. Deming declared the floor open for nominations for the post of Chairman of the Council.

Ralph L. Gilman, Storrs, was the sole nominee for this office and, after the nominations had been closed, it was VOTED that the General Manager be directed to record one unanimous ballot for Dr. Gilman's election. This was done.

Present were: Drs. Deming, Pitock, Gilman, Hess, Caplan, Cullen, Scully, Wilson, O'Connor, Bradley, Cornwell, Grendon, Grant, Davis, Murray, Jr., Chartier, Dean, Gorman, Martin, Sundquist, Egan, Abbot, Caplan, and Hastings. Also present: Mrs. Lindquist, Dr. Richards. Absent were: Drs. Goldberg, Gardner, Hughes, Gevalt, Phillips, and Beardsley.

Regular Meeting

APPROVAL OF MINUTES. It was VOTED to approve the minutes of the April 26, 1962, meeting as printed, except to record John F. Hughes, Somers, absent instead of Oliver J. Purnell, Rockville, as Councilor from the Tolland County Association.

COMMITTEE RESIGNATIONS, VACANCIES, APPOINTMENTS AND ADDITIONS.

a. Committee on Third Party Payments

It was VOTED to request Charles Polivy, Hartford, to reconsider his decision to resign as chairman of this Committee.

It was VOTED to accept with regret the resignation of Max Alpert, Bridgeport, from membership on this Committee.

It was VOTED to accept the resignation of Donn C. Barton, Portland, from membership on this Committee.

It was VOTED to appoint Howard K. Ente, Westport, and William E. Gatlin, Middletown, members of this Committee.

b. Committee on State Blood Bank

It was VOTED to appoint J. C. Early, Hartford, a member of this Committee.

c. Committee on Accident Prevention

It was VOTED to appoint Albert L. Larson, Hartford, a member of this Committee. It was further VOTED to have the General Manager consult with the Chairman of the Committee as to the appointment of additional members.

d. Delegate to the New Hampshire Medical Society

It was VOTED to appoint Howard K. Ente, Westport, a delegate to the New Hampshire Medical Society to replace Crawford Griswold, Bridgeport (deceased).

e. Special Committee to Fomulate Third Party Policy

It was VOTED to appoint Charles H. Audet, Jr., Waterbury, a member of this Special Committee. Related matters to this Committee were acted on under Item 25 of the Agenda as follows: It was VOTED to continue the Special Committee as follows: The President, Chairman; the President-Elect; the General Manager; the Committee on Third Party Payments; Charles H. Audet, Jr., (above) and Thomas M. Feeney, Hartford.

f. Committee on Rural Health

It was VOTED to accept the resignation of Theodore Safford, Jr., Ridgefield, as a member of this Committee, and it was further VOTED to appoint the following three physicians as additional members of the Committee: John M. Monacella, Windsor; Bruce R. Valentine, Abington; and Daniel C. Barker, Fairfield.

g. Conference Committee With Connecticut State Dental Association

The Council received with regret the information that Wilbur D. Johnston, New Haven, cannot serve as Chairman of this Committee for reasons of non-membership. It was VOTED to appoint Morris P. Pitock, Bridgeport, as a member of this Committee and as its Chairman.

h. Committee on Occupational Health

It was VOTED to accept with regret the resignation of Alfred B. Sundquist, Manchester, as a member of this Committee.

i. Committee on Post-Graduate Education

It was VOTED to accept the resignation of John B. Ogilvie, Stamford, as a member of this Committee. It was VOTED to appoint Leo M. Smith, Stamford, as a member of this Committee.

EXEMPTION FROM PAYMENT OF DUES. It was VOTED to exempt from payment of 1962 dues, Vernon J. Thomas, Jackson Heights, N. Y. (Tolland County) a/c postgraduate education.

DISPOSITION OF UNFINISHED BUSINESS.

a. Committee on Third Party Payments: It was VOTED to request the Committee to act and report on a matter referred to it in 1958, such action and report to be undertaken jointly with the Special Committee to Formulate Third Party Policy.

b. Committee to Confer with the Insurance Commissioner: It was VOTED to request the Committee to cease consideration of a matter referred to it in 1960.

c. Subcommittee on Opinion Survey: It was VOTED to direct the General Manager to write a letter to the firm of Rogers, Slade and Hill (the professional consultants on the Opinion Survey project) conveying an expression of satisfaction as to the performance of Rogers, Slade and Hill in completing its obligations to the Society in this matter.

d. Committee on Medical Economics and Insurance: It was VOTED to request the Committee to complete a matter of business referred to it in 1961 (relative to insurance available to members of the State Society and county associations) by re-evaluating its original report and reporting to the Council on this matter within sixty days.

e. Committee on Mental Health: It was VOTED to refer again for report, a matter referred to the Committee in 1961.

f. Committee on Medical Economics and Insurance: It was VOTED to refer again a matter referred to the Committee in 1961, with the request that the matter be studied and reported on to the Council.

g. Committee on State Blood Bank: It was VOTED to call to the attention of the Committee for 1962-63 a matter referred to the 1961-62 Committee, and to request the present Committee to make a study of the matter and file a report.

h. Committee on Medical Education and Licensure: It was VOTED to refer again to the Committee a matter referred to it in February, 1962, and to request that a report on the matter be made to the Council within thirty days.

i. Committee on Public Health: It was VOTED to refer again to the Committee for study and report a matter referred to it in March, 1962.

As a consequence of these discussions on unfinished business, it was VOTED to direct the General Manager to bring to the attention of the Council instances in which a Committee fails to file a report on a Council-referred matter within a reasonable length of time, or within a particular period specified by the Council at the time of referral.

LIFE MEMBERSHIP. It was VOTED to approve requests of members for transfer from Active Membership to Life Membership as follows:

Augustus Harris, Essex (Middlesex County)
Leo B. Drake, West Hartford (Hartford County)
Samuel Philipson, New Haven (New Haven County)
Samuel J. Silverberg, New Haven (New Haven County)
Irving S. Alderman, New Haven (New Haven County)

Since it appears that, under the newly effective Bylaws, a number of requests of this kind may be received from time to time, it was VOTED to direct the General Manager to prepare for the approval of the Council a suitable application form to be used by members of the Society who wish to apply for Life Membership.

SUBCOMMITTEES AND STANDING COMMITTEES OF THE COUNCIL, 1962-63. Subcommittees were appointed as follows:

Subcommittee to Study and Revise the Bylaws
  William J. Murray, New London, Chairman
  Phillip M. Cornwell, Hartford
  Jachin B. Davis, New Haven
  Frank K. Abbot, Waterbury
  Michael R. Scully, Bridgeport
  Gerard M. Chartier, Danielson
Subcommittee on Loan Fund
  Isadore S. Goldberg, Torrington, Chairman
  Richard F. Grant, Cromwell
  Michael R. Scully, Bridgeport
Subcommittee on Opinion Survey

Since this Subcommittee completed its assignment on April 26, 1962, it was VOTED to discharge the Subcommittee on Opinion Survey with thanks to its members for a job well done.

Standing Committees were appointed as follows:

Committee on Arrangements—This is a committee which will be appointed at such time as the date and place of the 1963 Annual Meeting of the Society has been decided upon.

Committee on Building Management
  The Secretary, Chairman
  The President
  The Treasurer
Committee on Employee Pensions and Benefits
  The Secretary, Chairman
  The President
  The Treasurer
Committee on Investment of Funds
  The Treasurer, Chairman ex-officio
  The President
  The President-Elect
Committee on Preliminary Study of Censorship Questions
To be appointed "if and when a complaint is received"
Committee on Preliminary Study of Nominations
  The President, Chairman
  The Councilor, or one Associate Councilor, from each of the eight component county medical associations.
Liaison Committee with Connecticut Medical Service, Inc.
  Ralph L. Gilman, Storrs, Chairman
  E. Tremain Bradley, South Norwalk

Max Caplan, Meriden, (until Dec. 31, 1962)
Henry Caplan, Meriden
Michael A. Dean, Bridgeport
Clyde L. Deming, New Haven
James R. Cullen, Hartford
Orvan W. Hess, New Haven
Nicholas T. Phillips, Norwich
William R. Richards, New Haven, ex-officio

TOBACCO EXHIBITS AT ANNUAL MEETING. A letter from Archie J. Golden, Wethersfield, received May 4, 1962, was presented, relating to the propriety of selling exhibit space at the Society's 1962 Annual Meeting to cigarette manufacturers. The letter was received as information.

REPORT OF THE COMMITTEE ON INVESTMENT FUNDS. Since the Treasurer had not yet returned from vacation, no report to be acted upon was presented. The matter will be taken up at the next meeting of the Council.

REPORT OF PANEL ON PHYSICIAN-HOSPITAL DISAGREEMENT. Acting on behalf of his committee (panel), the Chairman filed the report and recommendations of the committee with respect to a disagreement persisting between a physician member of the Society and a general hospital in Connecticut. For obvious reasons of confidentiality, the report and recommendations are not recorded in these minutes. Having examined the document submitted, the Council took the following actions: (AMB 5/23/62 "A")

A. A motion to "receive the report as information and take no further action" was lost. Drs. Dean, Scully and Gorman wished to be recorded as voting "yea" on the motion.

B. A motion to "approve the report of the Panel and transmit the report and its recommendations to the governing board of the hospital concerned and to the physician concerned" was introduced. An amendment to the motion reading "that the General Manager write a preamble to the letter of transmittal, which describes the activities of the Panel in this matter and precedes the verbatim report and recommendations of the Panel" was then proposed.

Acting first on the amendment to the main motion, it was VOTED to adopt the amendment, with Drs. Dean, Gorman and Scully being recorded as voting "nay," Dr. Pitock being recorded as "abstaining," and Dr. Hess being recorded as "absent."

Acting on a second amendment which would change the first word of the main motion from "approve" to "accept," it was VOTED to reject the amendment.

Acting on a third amendment to the main motion which would change the first word from "approved" to "received," it was VOTED to reject the amendment, with Drs. Bradley, Cullen, Dean, Gorman and Scully being recorded by request as voting "yea."

VOTING on the motion as amended, the motion was carried, with Drs. Bradley, Dean, Gorman and Scully being recorded by request as voting "nay."

The adopted motion reads (in composite form) as follows:

IT IS MOVED: That the Council approve the Report of the Panel and transmit the report and recommendations contained therein to the governing board of the hospital concerned and to the physician concerned, and that the General Manager be directed to write a preamble to the letters of transmittal of the verbatim report and recommendations of the Panel which shall describe the activities of the Panel in reviewing the matter submitted to it and on which its report and recommendations were based.

SUBCOMMITTEE OF OPINION SURVEY. Acting on a recommendation (submitted to the Council on April 26th) of the Subcommittee, it was VOTED to appoint a Special Subcommittee of the Council as follows:

Norman H. Gardner, Chairman
Phillip M. Cornwell, Hartford
Vincent A. Gorman, Bridgeport
Frederick C. Gevalt, Jr., Sharon
Denis S. O'Connor, New Haven

The duties of the Special Subcommittee will be to "study and review the Opinion Survey Report," to assign "pertinent sections of the Repart to appropriate Standing or Special Committees of the Society for detailed evaluation and possible policy formation," and to report its findings and recommendations to the Council when the study and review have been completed.

CONNECTICUT MEDICAL SERVICE, INC.

a. Received as information was a communication from Melvin Horwitz, Manchester, which stated, in part: "I feel the Council acted with poor judgment in this regard (Mr. Coolidges' article titled: 'An Amendment to the Preferred Contract'), and certainly should have allowed Mr. Coolidge to present his views (in CONNECTICUT MEDICINE). The fear of information and the attempt to prevent its appearance often strengthens its force."

b. Notation was made that the Standing Committee on Third Party Payments had submitted its Report and Recommendations with respect to the proposed Amendment to the CMS Preferred Contract.

c. As to the Report and Recommendations of the Council with respect to the proposed Amendment to the CMS Preferred Contract, called for in Article VII of the "Method," the Chair ruled that the formulation of the Council's Report was in order at this meeting. The ruling of the Chair was challenged, and the challenge was supported by majority vote.

d. Report of County Association Actions on the Proposed Amendment

Fairfield—to act on May 25, 1962
Hartford—approved
Litchfield—disapproved
Middlesex—approved
New Haven—disapproved
New London—approved
Tolland—to act soon
Windham—approved

DIRECTIVE FROM THE HOUSE OF DELEGATES. A resolution from the House of Delegates (May 2, 1962) was received and it was VOTED to refer the resolution to the Committee on Hospitals for study and implementation. The text of the resolution follows:

"BE IT RESOLVED: That the House of Delegates of the Connecticut State Medical Society direct the Council of CSMS to re-open negotiations with the Connecticut Hospital Association for the purpose of establishing an impartial joint committee to review and assist in the resolution of problems involving the dismissal of physicians from hospital staff membership and/or reduction in privileges of hospital staff members."

GUIDES FOR THE NOMINATION OF AMA DELEGATES AND ALTERNATES. It was VOTED to approve these "Guides," as prepared for the Council of the Massachusetts Medical Society by an *ad hoc* committee of that Society, and it was further VOTED to inform the Council's Committee on Preliminary Study of Nominations of this action. (AMB 5/23/62 "B")

COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS. Having received the report and recommendations of a special committee of the Council to study the desirability of appointing a Committee on Medical Education and Hospitals, it was VOTED to accept the recommendations of the special committee (Drs. Stevens J. Martin, Vincent A. Gorman and Oliver J. Purnell) as amended by the Council.

The amended recommendations follow:

1. That it is most desirable to establish and maintain liaison with the AMA Council on Medical Education and Hospitals.

2. That to accomplish the purpose of establishing and maintaining liaison with the AMA Council on Medical Education and Hospitals, a committee should be appointed.

3. That this committee should be comprised of the Society's AMA Delegates, the Alternate AMA Delegates, a member of the Standing Committee on Hospitals and a member of the Standing Committee on Post-Graduate Education, and should be appointed by the Council to carry out this liaison function.

4. That the Committee formulate and present an appropriate resolution to the next meeting of the House of Delegates of the AMA, such resolution to foster the establishment of liaison committees by all state medical societies and recommending that these state committees meet at least once a year with representatives of the AMA Council on Medical Education and Hospitals, preferrably on a regional basis.

It was VOTED to appoint the Committee as described in Recommendation No. 3 (above) and to direct the Committee to carry out these recommendations without prior review by the Council. The names of representatives from the Committees on Hospitals and Post-Graduate Education are to be requested from the chairmen of those committees

CONNECTICUT CONGRESS ON MEDICAL QUACKERY. Max Caplan, Meriden, Chairman of the Advisory Committee to draw up plans for holding such a Congress, submitted the proposals of his Committee. The Congress would be a one day meeting, with luncheon served at noon, and would be held on Wednesday, September 26, 1962, at the Connecticut Light and Power Office Building on the Berlin Turnpike. A tentative program of speakers and exhibitors has been developed and the approval of the Council was sought. It was VOTED to approve the holding of the Congress as outlined by Dr. Caplan's Advisory Committee, to authorize Dr. Caplan to proceed with the implementation of plans, to appropriate the sum of $1,000 to finance the program, and to direct Dr. Caplan and the General Manager to secure legal counsel as to obtaining adequate insurance protection for the Society against possible suit for libel or slander. It was VOTED further that costs associated with this counsel and/or insurance be borne by the Society separate from those associated with the Congress itself.

RESOLUTION FROM MEDICAL STAFF OF SHARON HOSPITAL. David A. Grendon, Councilor from the Litchfield County Association, introduced a resolution adopted on May 5, 1962 by the Medical Staff of the Sharon (Conn.) Hospital. As amended by Dr. Grendon, himself, the resolution considered by the Council read as follows:

BE IT RESOLVED: That the practice of pathology, radiology, physiatry and anesthesiology be recognized as the practice of medicine, to be engaged in by physicians rather than by hospitals, and be it further

RESOLVED: That this resolution be referred to the Five Agency Conference for whatever action is indicated to achieve this goal.

It was VOTED to adopt the resolution as presented by Dr. Grendon.

CONFERENCE ON HOSPITAL LICENSING. At the request of Franklin M. Foote, Commissioner of Health, it was VOTED to approve and authorize the following:

1. That the President, Dr. Deming, or his representative give a five or ten minute talk at the general session at 9:30 A.M., June 14, expressing interest in setting high standards for hospital care in Connecticut.

2. That the Committee on Hospitals be authorized to participate in various work groups shown in the statement: "We are also asking the Section on Anesthesiology to designate five or six persons for that section, the Connecticut District Branch of the American Psychiatric Association, the Connecticut Society of American Board Surgeons and the Section on Obstetrics and Gynecology to designate persons for their respective work groups."

3. That the officers of the Society, including the General Manager, be encouraged to participate in the meetings and that it would be proper for Dr. Foote to send individual letters of invitation to them.

USE OF X-RAY BY NATUREOPATHS AND OTHERS. It was VOTED to refer to the Section on Radiology for study and report the following excerpt from a letter from Commissioner of Health Foote:

"There is no law prohibiting the use of X-ray for diagnostic purposes by natureopaths, chiropractors or chiropodists. Section 53-212 of the General Statutes does prohibit the use of X-ray for therapeutic or cosmetic purposes by anyone not licensed to practice medicine and surgery, osteopathy or dentistry."

COMMITTEE ON HOSPITAL PLANNING. Having requested same, the Council was informed of the views of the Commissioner of Health with respect to the desirability for and functions of a state-wide Committee on Hospital Planning, now under consideration by a Committee appointed by the Governor. Dr. Foote's letter, outlining his views, was received as information and is to be filed for future reference.

COMMUNICATION FROM MEMBER RE CMS POLICY. Having received a letter of inquiry from a physician member regarding CMS policy, it was VOTED to advise the member to communicate with Mr. Howard E. Bierkan, Director of Claims and Physicians Relations of CMS, Inc.

LEGAL COUNSEL ON CORPORATE PRACTICE OF MEDICINE. The General Manager reported on his discussions with Attorney Edward L. Marcus, New Haven, regarding the willingness of Mr. Marcus to undertake a study of the corporate practice of medicine by hospitals and the financial arrangements which would be agreeable. It was VOTED to engage Mr. Marcus on the terms outlined, and to authorize the setting aside of a primary allocation of $2,000 for this study. It was further VOTED to direct the General Manager to keep the Council informed as to current accumulating costs of the project as it proceeds.

Relative to a specific question raised by the Section on Radiology, on which it was believed desirable to obtain a ruling from the State's Attorney General, it was VOTED to direct the General Manager to consult with counsel as to how best to seek such a ruling, and to abide by the advice of counsel in this matter.

THE SOCIETY'S AUTOMOBILE. It was VOTED to refer all questions pertaining to the possible purchase, garaging and use of a new Society automobile to the Committee on Building Management for study and report.

STUDENT MEMBERS. It was VOTED to elect to student membership the following:

Martin J. Adelman, 224 Ray Road, New Haven
University of Virginia—Class of '64
Pre-Med: Yale University
Parent: Maurice Adelman

SPECIAL COMMITTEE TO FORMULATE THIRD PARTY POLICY. It is noted that this matter (Item No. 25 on the Agenda) has been acted upon under Item 2 "e" of these minutes.

REQUEST FOR REPRESENTATIVE TO ADVISORY COUNCIL OF CCCHA. The Connecticut Chronic and Convalescent Hospital Association, Inc. requests that a representative of the Society be appointed to serve with the Advisory Council of a CCCHA Accreditation Committee being set up in this state in conformance with the American Nursing Home Association Accreditation Committee.

It was VOTED to notify the CCCHA of the Council's interest and intent to appoint such a representative of the Society to this Advisory Council, and to request the Committee on Aging and the Society's representatives to the Conference Committee for the Improvement of the Care of the Patient to submit suggested nominations for the post.

DATE OF THE NEXT MEETING. It was VOTED to direct the Chairman and the General Manager to call the next meeting of the Council as soon as practical after notification is received that all eight component county associations have met and acted upon the proposed Amendment to the CMS Preferred Contract.

Brief Summary Of The Present Status Of Selective Service As It Relates To Physicians

During the calendar year 1961 three Selective Service calls for physicians were issued. This was the first time such calls have been necessary for several years. However, during the past year there was a decrease in volunteers and an increase in the numbers required by the Armed Forces as a result of the mobilization program. This increase in requirement was obtained by:

1. Discontinuing the acceptance of resignation of Regular Officers.

2. Denying release of those Reserve Officers who had voluntarily extended their active duty for an indefinite time.

3. Selective Service call up of 1,025 physicians.

4. Call to active duty of National Guard and Reserve Units with Medical Officers attached.

Because physicians, dentists and other medical specialists, generally speaking, are liable for military service until age 35, and because they may be called as a special group, they were given the following considerations:

1. Those in a Reserve status who were called as filler personnel on or after September 1, 1961 and who had completed at least 21 months previous active duty were given the opportunity to be released shortly after the activation of the unit.

2. Those Reserve Officers on active duty serving only their required two years were released at the end of their tour.

The physicians called up by Selective Service were those in the youngest age group who had completed their internship. This group, therefore, included almost exclusively first year residents and physicians just beginning private practice. Since the call was based on age it was not evenly distributed and some hospital training programs suffered a depletion of their first year residents while others were untouched.

Because of the possibility of future Selective Service calls for physicians in time of a crisis it would be well to consider the measures which are available to ameliorate the effect on hospital staffs and civilian communities. These are:

1. *Appeal of classification of 1-A (available for military service) to the Appeal Board.*

Shortly after completion of internship, physicians are normally classified by Selective Service in Class 1-A. An appeal may be made within ten days after receipt of this classification by filing with the local board a written notice of appeal. If the physician is located in an area other than that covered by his local board he may request that his appeal be submitted to the appeal board having jurisdiction over the area where he resides.

2. *Request for determination of essentiality.*

A physician who receives a Selective Service induction notice may, if he is essential to his community or hospital and if his essentiality can be documented, request a determination of such essentiality from his local or State Selective Service Advisory Committee. Copies should be sent to the advisory committee where he is located if this is different from the committee governing the area of the board where the physician is registered. Such a request may also be directed to the National Advisory Committee to the Selective Service System, Washington, D. C.

3. *Delay in reporting to active duty.*

Physicians who have received induction notices and have been commissioned may apply to the Armed Services in which they are commissioned for a delay in reporting to their duty station. Such request must be supported by evidence of essentiality or severe personal hardship.

For those physicians who do not wish to subject themselves to the uncertainties of the draft, the Armed Forces Physicians' Appointment and Residency Consideration Program (Berry Plan) provides for a reserve commission with entry on active duty at one of the following times:

1. Immediately upon completion of internship.

2. As late as one year following internship.

3. Upon completion of residency training in specialties required by the Armed Forces.

Application may be made for participation in this program early during the intern year. Acceptance into any of the three categories is dependent upon the projected needs of the Armed Services.

(Prepared at the request of the AMA Council on National Security by Eugene V. Jobe, M.D., Medical Liaison Representative, AMA Washington Office, and James E. Fitzgerald, M.D., Member, AMA Council on National Security. April 9, 1962.)

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Clinical Medicine

Circulation Through The Brain

Louis H. Nahum, m.d.
New Haven

The brain which represents but two per cent of the body weight receives about 16 per cent of the cardiac output and consumes about 20 per cent of the oxygen used by the entire body.[1] This means that the brain is one of the most actively metabilizing of organs. By contrast with many other organs its metabolism depends for its ultimate energy supply primarily upon aerobic combustion of glucose. Since neither glucose nor oxygen are stored in the body, even brief interference with the cerebral circulation can bring profound disturbances of its neurologic and mental functions, and consciousness terminates within 7-10 seconds after complete cessation of the circulation through the brain. To avoid impairment of consciousness, the brain must have mechanisms that can enable it to secure a large and continuously sustained circulation under wide variations of systemic blood pressure.

The overall metabolism of the brain is remarkably uniform even though the metabolic needs of areas in different cerebral regions vary depending upon their activity. Gray matter may have six times as much flow as white matter. For example, flow in the areas of the brain involved in visual function always can be shown to increase when light flashes on the retina. Nevertheless the O_2 consumption of the brain as a whole remains constant during sleep or severe intellectual activity so that there is not widely fluctuating metabolic needs and a rather constant blood flow through the brain at all times. In fact, there is a very narrow range of permissible variation in the blood flow through the brain and serious cerebral ischemia will develop when the blood flow is reduced to about 60 per cent of its value in the resting recumbent state.[1]

The cerebral circulation takes place within a relatively rigid container, the cranium. The brain itself is incompressible. However, there is some room in the spinal dural tube, so that the volume as a whole can be somewhat altered. An increase in any one of the components, cerebrospinal fluid cerebral blood volume, can only occur at the expense of the other. This led to the hypothesis called the "Monro-Kellie" doctrine which states that the quantity of blood within the cranium must be approximately constant at all times in health and disease. However, this doctrine refers to the quantity of blood not the rate of blood flow. This latter can increase or decrease depending upon the head of pressure in the arteries at the base of the brain and the caliber of the cerebral vessels meaning the resistance which the vessels offer to the blood flow.

The systemic arterial pressure varies widely during activity, during rest and in disease, nevertheless the blood flow through the brain is kept constant, clearly there must exist local mechanisms which guard the brain against wide fluctuations in systemic pressure and cardiac output. For example, in marked hypotension there would have to be cerebrovasodilation to maintain adequate cerebral perfusion. In the systemic circulation there occurs widespread vasoconstriction to support the arterial pressure in marked hypotension. If the cerebral vessels were also subject to the same reflex vasoconstrictor influences the cerebral perfusion would be dangerously reduced. This does not happen. Instead the cerebral flow appears "privileged" and its own intrinsic regulatory mechanisms cause dilatation in order to maintain adequate cerebral flow. Only when the cardiac output is reduced to one-third, do we find that cerebral vasodilatation is unable to keep pace with the reduced pressure and there will follow a reduced cerebral flow with all its dangerous consequences.

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In hypertension the opposite is true. As systemic pressure rises, unless a local mechanism in the brain guarded its blood supply there would occur an increase in cerebral blood flow. Instead the cerebral blood flow does not change and this could only occur if the cerebral vasculature had the ability to resist marked increases in blood pressure, to preserve a normal cerebral perfusion. It appears that normal cerebral arteries are able to "feel" the distending pessure in the lumen and react by constricting, in response to pressure elevation, and dilating in response to pressure reductions. Such a mechanism could protect the brain during extreme fluctuations in arterial pressure. If the arteries were sclerosed such reactive mechanisms may be lost and then the brain would lose its ability to "guard" its blood supply and be unable to maintain a high rate of metabolism. Thus we see that the circulation in the brain goes its own way both in hypotension and hypertension and the homeostasis of the cerebral circulation is maintained within broad variations of blood pressure and cardiac output. It follows that this must be accomplished by intrinsic mechanisms governing the cerebrovascular resistance.

The cerebral vessels are supplied with sympathetic and parasympathetic fibers, but stimulation of these nerves cause only inconstant changes in cerebral blood flow. Although in pathologic states the cerebral vascular tone of the larger vessels can be modified, in health there is apparently no contribution of neurogenic origin to the intrinsic tone of the cerebral vasculature. In man much more study is needed to define the role of the nerves in the control of the cerebral circulation although we know already that reduction of sympathetic inflow by anesthetic block of the stellate ganglion does not alter the cerebral circulation.[2]

Although the cerebral vessels are little if at all sensitive to neurogenic control, they are extremely sensitive to chemical influences. In fact, chemical control, that is, response of the cerebral vessels to blood gases, is the major mechanism of intrinsic control. An increase in CO_2 tension (pCO_2) causes marked dilatation of vessels, whereas changes in O_2 (pO_2) are also potent in altering the size of the cerebrovascular bed though not to the same degree as changes in pCO_2. If pCO_2 rises to four per cent no change occurs in the cerebral blood flow. But beyond four per cent there is increasing dilatation of vessels and progressive increase in blood flow so that if pCO_2 is increased 16 per cent, the cerebral blood flow will double. If arterial pressure falls and blood flow tends to decline, the constant metabolism of the brain requiring O_2 will cause more oxygen to be extracted from each unit of blood passing through the brain and greater CO_2 will be added. The pO_2 will fall, the pCO_2 will rise each causing vaso-dilatation. Conversely if arterial pressure rises and blood flow tends to increase, then the pO_2 will rise, the pCO_2 decline both causing vasoconstrictor effects.

O_2 tension is a second major factor in cerebral vascular flow. If pCO_2 is reduced by breathing 10 per cent O_2 vasodilatation will occur causing up to 35 per cent increase in flow through the cerebral vessels. If 85-100 per cent O_2 is inhaled, cerebral flow may be reduced up to 13 per cent meaning that it causes some vassoconstriction. However, with the usual O_2 administration in disease states such as pulmonary or cardiac disease, the effect on the brain vessels would not be sufficient to constitute a contraindication in patients that also have cerebral vascular disease.

The manner in which the gases affect the caliber of the vessels is only just beginning to be understood. The gases exert their effect upon the capillaries and venules, nevertheless the effect is registered also "upstream" on the smooth muscle of the vascular wall. This happens everywhere in the body during "reactive hyperemia" and is probably the result of the liberation of a bradykinin like vasodilator polypeptide. In hyperventilation whether due to cerebral trauma, coma, or emotional factors the pCO_2 goes down and cerebral flow may be sufficiently reduced to lead to syncope. To some extent the vasoconstrictor effect of lowered CO_2 may be offset by the pO_2.

The biggest danger occurs in diseases in which changes in the tension of arterial blood gases occurs and when the vessels have undergone such structural changes that they will become less responsive to effects of the blood gases. In cerebrovascular disease lesser degrees of hypotension may precipitate critical falls in cerebral blood flow. An example is the patient who may be dull and uncooperative when seated upright in bed for some time but who becomes alert and cooperative when examined flat.

The above mechanisms must be distinguished from the passive changes in the caliber of capillaries and veins that occur with changes in transmural pressures. In increased intracranial pressure, the resistance in the vessels increases by direct action, and the blood flow in the brain would tend to decline unless the systemic arterial pressure rises to help overcome the resistance in the vessels caused by the transmural pressures. Conversely abrupt lowering of intracranial pressure does not cause any increase in cerebral blood flow. In other words, alterations in intracranial pressures except in severe cases is not associated with significant changes in cerebral blood flow. An analysis of what takes place during tilting up and down or during standing shows the mechanisms of adjustment that keeps cerebral metabolism fairly constant. On standing the cerebral blood flow decreases 21 per cent but the O_2 consumption does not change. The decrease results from a fall in the mean arterial pressure at brain levels averaging 19 to 29 mm. Hg in two studies. One adjustment to posture is a seven mm. Hg fall in jugular venous pressure which offsets about one-third of the decline in arterial pressure. At the same time the cerebrospinal fluid pressure at brain levels also falls to the same degree as the venous pressure and this assists in maintaining the normal caliber of the cerebral veins and probably the capillaries. Also helping along are the changes in gas tension in the cerebral vessels due to the slight decrease in blood flow. The final contribution to adjustment in posture is an increase in pulmonary ventilation in the upright position which reduces the pCO_2 in arterial blood by several mm. Hg to offset intrinsic adjustments in the cerebral vessels.

Since intracranial venous pressure and cerebrospinal fluid pressure are factors in adjustment to posture it follows that interference with these adjustments by intracranial pressure or tumors might lead to a significant fall in cerebral blood flow when such patients are tilted upward. This in fact was found to be the case by Shenken and Novack who report significant fall in cerebral blood flow when tumor patients are tilted up 20°.

What happens to cerebral blood flow as a result of aging is difficult to determine because "normal" subjects in the older age group not affected by disease processes are hard to come by. If no overt evidence of vascular disease is present in the older age group then only slight decreases in blood flow and oxygen uptake per unit of brain has been reported. In a recent study mean patient age 72, who were carefully selected to exclude even slight evidence of diseases no change in either blood flow or oxygen uptake is reported. If these results can be confirmed then chronologic age *per se* is not a factor in cerebral metabolism.

It is clear enough that the metabolic activity of the brain is a predominant regulator of cerebral blood flow provided the cardiac output and arterial pressure will furnish sufficient blood to the brain. In this situation, the brain is a privileged area capable of guarding its blood supply by many mechanisms to sustain its metabolic needs.

REFERENCES

1. John L. Patterson, Jr. in Ruch and Fulton, Medical Physiology and Biophysics, page 742. Circulation Through The Brain, 18th Edition, W. B. Saunders, Philadelphia, 1960.
2. H. A. Shenkin and P. Novack: The control of the cerebral circulation. J.A.M.A., 178: 390, October 28, 1961.
3. Dastur, D. K., Lane, M. H., Hansen, D. B., Kety, S. S., Batter, R. N., Perlin, S., and Sokoloff, L.: Effects of aging on the cerebral circulation and metabolism in man. National Institute of Health Monograph.

Notes On Toxemia of Pregnancy

Subcommittee On Toxemia Of Pregnancy
Of The Committee To Study Maternal Mortality And Morbidity

Franklin H. Epstein, M.D.
Clarence Davis, M.D.
New Haven

The Patient

The patient is a 19 year old white primipara who was first seen in the obstetrician's office when eight weeks pregnant. Hemoglobin was 13.6 grams. Urine was negative for albumin and sugar. The course was uncomplicated until the 32nd week. At that time the blood pressure was 122/70 and the urine was negative for albumin and sugar. Because she had gained five lbs. in two weeks she was given chlorothiazide, although edema was not noted.

Ten days later and two days prior to admission, the patient called her physician and complained of moderate to severe headache. On the day of admission the husband was awakened by the wife's movements and noted that his wife was stiff. There was "lather running from the mouth" and the floor was wet.

The patient was immediately brought to the emergency room where she appeared lethargic. There was some edema of the upper lids and one plus edema of the feet. Blood pressure was 156/106. Fetal heart was heard in the right lower quadrant.

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She was immediately admitted to the obstetrical floor at 10:10 a.m.

Immediately following admission, the patient had another convulsion and the blood pressure rose to 200/110. She was given morphine sulfate grains one-sixth; five cc. of 50 per cent magnesium sulfate intramuscularly in each buttock; sodium luminal grains four intramuscularly; apresoline 40 mgs. intramuscularly. A record of intake and output was started. Blood pressure was ordered every one-half hour. BUN, CO_2 and a 24 hour urine for protein were ordered. The room was kept dark and she was given nothing by mouth.

Blood pressure levels thereafter remained between 128 to 140/70 to 90. The fetal heart remained good and the patient had no further convlusions. She received five ccs, of 50 per cent magnesium sulfate intramuscularly at 2:00 p.m. and 6:00 p.m. and sodium luminal grains two at 3:00 p.m. and 5:00 p.m. At 1:40 p.m. 40 mgs. of apresoline was again given intramuscularly, and at 6:45, she was given 20 mgs, of apresoline intramuscularly. Hourly urine output varied from eight to 30 ccs. and at 2:45 p.m. the patient was given 1,000 ccs. five per cent glucose in water intravenously. The urine output remained low and the protein in each specimen was 30-100 mgs. per 100 cc. The urinary output from 3:00 to 8:00 p.m. was 99 ccs.

At 8:55 p.m., the patient went to the operating room and was delivered by a low transverse Caesarean section. The child was a male, weighing four pounds, 11 ounces, who was in good condition at birth and was discharged well.

Following operation, the patient was given two grains of sodium luminal every two to three hours as necessary for restlessness, and magnesium sulfate 35 per cent, two ccs. intramuscularly every four hours for four doses. Following operation, the output of urine increased. Blood pressure varied between 130 and 150/80 and 100. The patient was discharged one week after delivery in excellent condition. Prior to discharge the blood pressure was 134/90.

Laboratory reports were as follows: On admission, a catheterized urine showed specific gravity 1.020, albumin two plus, sugar negative, WBC 6-8, RBC few, 1-2 granular casts per high powered field. Hemoglobin was 12.8 grams. Urea nitrogen eight mgs. per cent, CO_2 22.8 mEq/L., 24 hour urine protein, 536 mgs. in 24 hours.

Comment

This case illustrates the frightening and explosive nature of eclamptic convulsions in a patient who had been followed closely throughout pregnancy and was last seen by her obstetrician twelve days prior to the sudden appearance of eclampsia. Although blood pressure was normal and urine clear on that last office visit, excessive weight gain (presumably inapparent edema) had prompted the prescription of a diuretic. In this situation, the complaint of *severe headache* two days before the convulsion should have been the signal for an immediate visit to the office for another measurement of blood pressure and urinary protein. If, as seems likely, signs of toxemia were present at that time, admission to the hospital, bed rest, low-salt diet, together with reserpine, chlorothiazide or small doses of apresoline if necessary to reduce blood pressure, might have prevented a distressing and dangerous complication.

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SEPTEMBER 28, 1962

Annual Reports Of The Connecticut State Medical Society
1961 - 1962

The following reports were presented to the House of Delegates and appear as accepted. All reports, as originally submitted are on file in the Secretary's Office.

REPORT OF THE SECRETARY

Early in 1961, popular magazine articles blazoned with headlines that this was destined to be a year of crisis for Medicine. Indeed, there have been multiple crises of major and minor significance. We have witnessed an attack on the public image of the doctor, the libelous efforts to vilify the A.M.A., overt attempts to scuttle the Kerr-Mills Law, as well as activities of the Kefauver Committee. But, I believe these crises have served, in the main, to bring issues and challenges to our profession more sharply into focus. They have provided a clearer concept of the stand which this Society must take if it is to maintain its present position of high regard in relation to medical care.

The Council, under the able Chairmanship of Dr. Gilman whose report you have just heard and whose minutes have been reported in CONNECTICUT MEDICINE, has been confronted with an increasing burden. Your General Manager and his staff have served beyond the call of duty in an attempt to communicate with the membership which now totals 3,389 or two-thirds of Connecticut physicians. 51 new members were added in New Haven County. Dr. Richards has worked diligently to keep them informed on all matters of concern.

The past year has been an active and productive one. The numerous Committees of the Society are to be complimented for the many time-consuming jobs well done despite our voluntary system. In review of these activities I do not wish to be repetitious (their reports are all in the agenda), yet I would like to place emphasis on a few developments. The Committee on Bylaws accomplished a monumental task. The recognition of the need for closer integration of Committee functions, resulted in the establishment of Divisional Boards. This change should materially increase the efficiency of our organizational structure. While the responsibilities of each Chairman of a Divisional Board will be definitely augmented, his function as a coordinator and as a source of liaison with the Council and House of Delegates should be of great mutual benefit. Other accomplishments during the past year to be especially noted are those of the Public Relations Committee in efforts to give the correct image of the Physician and organized medicine to the Public, the Legislative Committee and the Third-Party-Payments Committee. Their services have been indispensable to the Society.

The Committee on Medical Licensure has given active consideration to the problem posed by the influx of physicians with foreign training. Some 270 of these took written examinations in Connecticut during 1961. A request has been received from the World Medical Committee to assist in placing some of the Cuban refugee physicians numbering some 1200 in the U. S. with about 800 sitting in Florida. Now organized as "The Cuban Medical Association in Exile" they have been aided quite considerably by A.M.A., Foundation, and other Grants for aid to support their efforts to meet the required educational standards. About 400 have now passed the E.C.M.G. examinations and should receive our sympathetic interest.

No provision has been made to replace the previously existing Professional Relations Committee. That Committee, having disciplinary duties, had only one occasion to act during the past year. It is a pleasure to report that the few complaints directed against our members have been satisfactorily handled by competent committees in County Medical Associations. While the Committee on Medical Discipline of the A.M.A. has called attention to unfavorable publicity for the profession caused by complaints of excessive fees for service or padded, false bills where insurance has been involved, Connecticut physicians have policed themselves admirably. Responsibility for disciplinary action now rests with the Council. Since these investigations may require lengthy interviews, and reports it may be necessary to delegate such duties if they arise.

A Committee of Past-Presidents and Others has been authorized. This Committee, which includes also Executive Secretaries of the component County Medical Associations may be expected to present such suggestions and ideas which, from their special perspective and experience, will be of benefit to the Society. If the burden of Society business continues to grow and the need for rapid implementation of recommended projects while they may still be effective, as in certain legislative affairs, persists it may be of value to establish a Ways and Means or "Action Committee," on whom the General Manager may call for temporary assistance when situations of urgent nature arise.

The Committee on Hospitals can be expected to have increasing responsibilities as the problems of adjustment to changing relationships of Hospitals to Community Medical Care unfold. Socio-economic affairs, on National and Local levels, demand our major consideration. Continuous attention and assistance must be directed toward activities of those who would provide Hospital Care as well as Medical Services. Many will recall that Dr. Louis Bauer, then President of the World Medical Committee, speaking here three years ago, warned that "unless we supply an adequate *voluntary* insurance system for people to meet the cost of medical care with physicians enjoying a modicum of control, the alternative will be a *compulsory* system based on general taxation and government control." We are further warned now, by others with perhaps different motives, that there is a "clamoring for coverage" by the ever-increasing middleclass in our economic set-up as they become overwhelmed with "insecurities" engendered by the irresponsibility of a "PLAY NOW AND PAY LATER" philosophy.

The Connecticut State Medical Society can take pride in the development and adoption of the new "Community Contract" sponsored with C.M.S. This and "Connecticut 65" insurance plan for the aged are signal evidences of a positive program designed to aid people in meeting their costs for medical care on a voluntary basis. I believe efforts of the Connecticut State Medical Society and C.M.S. along such lines should continue. The Liaison Committee of the State Medical Society, in an advisory capacity, and our representatives on the Medical Advisory Committee of C.M.S., at all times are willing and ready to cooperate with the Board of Directors of C.M.S. in implementing aid for similar purposes which will truly serve the public interest.

The continuing challenge to our Profession is to find the means with which to prevent the intervention of any factor that will lead to deterioration of, or impaired availability of, the present high quality and standards of medical care for our patients.

Respectfully submitted,
Orvan W. Hess

REPORT OF THE PRESIDENT

Being very much alive, not having resigned, and not having been put out of office, as the new bylaws state, I am here to report as President. I assure you my report shall be brief. After almost two decades in this House of Delegates, I think most of you are acquainted with the principles under which I operate. Having visited six of eight counties, and given you my present-day thoughts and concerns, I don't think you want to hear them repeated here. Furthermore, I have struggled through twelve issues of Connecticut Medicine, composing 550 words each month, which I am sure some of you read, because some of the men took time to write me letters and tell me what they thought in their own minds about what I had to say. I appreciate the doctors taking this time to correspond with me.

Now, I could speak of many things that present themselves to medicine. For instance, the individual responsibility plan that has been developed on the West Coast; the vote of non-participation in any compulsory program, a vote taken by the Academy of General Practice in its recent meeting in Las Vegas; or the action of the doctors in Saskatchewan, who have prevented a compulsory program from going into effect as of April 1 in that area of Canada by their unwillingness to heel under, to knuckle under to a compulsory system.

But being responsible delegates representing your fellow practitioners, you are all acquainted with these things, and you are up on your toes and ready to meet anyone and discuss with them these particular situations, including the various ramifications of the King-Anderson Bill and the Kerr-Mills Bill, so I will not bore you with these, because I am sure you know them well.

I wish simply and sincerely to thank you for the many positions of trust you have given to me. I carry away from here memories which are rich, with a feeling of good fellowship for the many persons I have met. I extend to my successor, Dr. Clyde Deming, my most sincere best wishes for a productive year as President of this Society.

My sincere appreciation goes to those dedicated persons in our State office, under the leadership of Dr. William R. Richards, Mrs. Josephine Lindquist, and Jim Burch. I am sure that without their stabilizing influence the affairs of our Society would be in very poor condition.

Frankly, it has become impossible, in my estimation, for a physician in private practice to do a good job as President of a state medical society. If you try to do a good job, your cohorts will retire you from practice. I hope that today's activity will find this House of Delegates united in the interests of the medical profession of Connecticut and of the nation. I offer you my humble and sincere thanks.

Respectfully submitted,
Thomas M. Feeney

Photosensitivity Reactions To Drugs

Although photosensitivity reactions to drugs are not frequent, the summer months will undoubtedly see an increase in their incidence, and an awareness of the possibility of such reactions is important when certain drugs are administered or prescribed.

Among the drugs which are known to cause photosensitivity reactions are the thiazide diuretics; the anti-infective sulfonamides; antibiotics (especially demethylchlortetracycline [Declomycin — Lederle], chlortetracycline [Aureomycin—Lederle] and griseofulvin [Fulvicin—Schering; Grifulvin—McNeil; Griseofulvin—Ayerst]); such phenothiazines as chlorpromazine (Thorazine—SKF), promazine (Sparine—Wyeth), promethazine (Phenergan — Wyeth), and triflupromazine (Vesprin — Squibb); and methoxsalen (Oxsoralen—Elder; Meloxine—Upjohn). (Methoxsalen is used orally to *increase* tolerance to ultraviolet light, but it sometimes causes photoallergic reactions).

Less frequently implicated as photosensitizers are barbiturates, salicylates, and oral para-aminobenzoic acid. (Para-aminobenzoic acid is used topically as an ultraviolet-absorbing barrier to *prevent* light reactions).

The sulfonamides—Of the photosensitizers listed above, the thiazide diuretics and the sulfonamide anti-infective are chemically related; and it is not unlikely that other sulfonamides, for example, the carbonic anhydrase inhibitors (Diamox—Lederle, and others), will occasionally have a photosensitizing effect. Tolbutamide, USP (Orinase—Upjohn), a sulfonylurea compound, has been suspect but not definitely implicated as a photosensitizer.

Light-induced reaction associated with the oral or parenteral use of drugs are usually either phototoxic or photoallergic, or a combination of both. The phototoxic reaction resembles exaggerated sunburn; the severity of the reaction is dependent on the dose of the sensitizing drug and the intensity of the exposure to ultraviolet light. The reaction is characterized by erythema with or without blistering. When the erythema subsides, residual tanning appears, as in ordinary sunburn.

Photoallergy—Photoallergic reactions depend on an antigen-antibody reaction, and require an incubation period of at least several days after exposure both to the drug and to light.

Reprinted from The Medical Letter on Drugs and Therapeutics, New York, N. Y.

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1962 MEETINGS

Sept. 19—Hartford Chapter of the American Cancer Society. Time and place of meeting not decided yet.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Oct. 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Surgeon desires association—presently Chief resident surgeon, University Hospital. Available after July 1st.

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Around The State

The Naugatuck Valley Medical Society began its program of Sabin oral polio Type I in June. A modest charge to the recipients was made. Cooperation with all school and public health programs in the valley, resulted in a joint effort to immunize the entire community in one concerted drive. Coordinated follow-up clinics for Type II and III, in conjunction with school and public health programs, will resume in the fall. The resultant public relations benefits from these joint efforts has been remarkably effective, with front page newspaper and choice radio publicity obtained. Also, newspaper "ads in the public interest" have been voluntarily donated by the local newspaper, which represents something of a "first" in medical public relations locally.

The annual Society picnic was held in June and the Women's Auxiliary began to outline its initial plans for the annual Naugatuck Valley Medical Society Scholarship Ball in the fall, an event of increasing social importance in this community.

A follow-up joint meeting of the local professions has been arranged in the fall, to cement the mutually discovered common interests of the professions of medicine, dentistry, law and pharmacy, following the initial joint meeting in the spring. It is of considerable import to note that volunteers from all of these professions, have actively sought to participate in the community service aspects of the June Sabin polio clinics sponsored by the Naugatuck Valley Medical Society.

An eight month campaign to merely introduce and define the concept of Compac and Ampac locally has ended. It is expected that as a result of this preliminary conditioning, a favorable response will be obtained when the actual program is ready for presentation in the local medical community.

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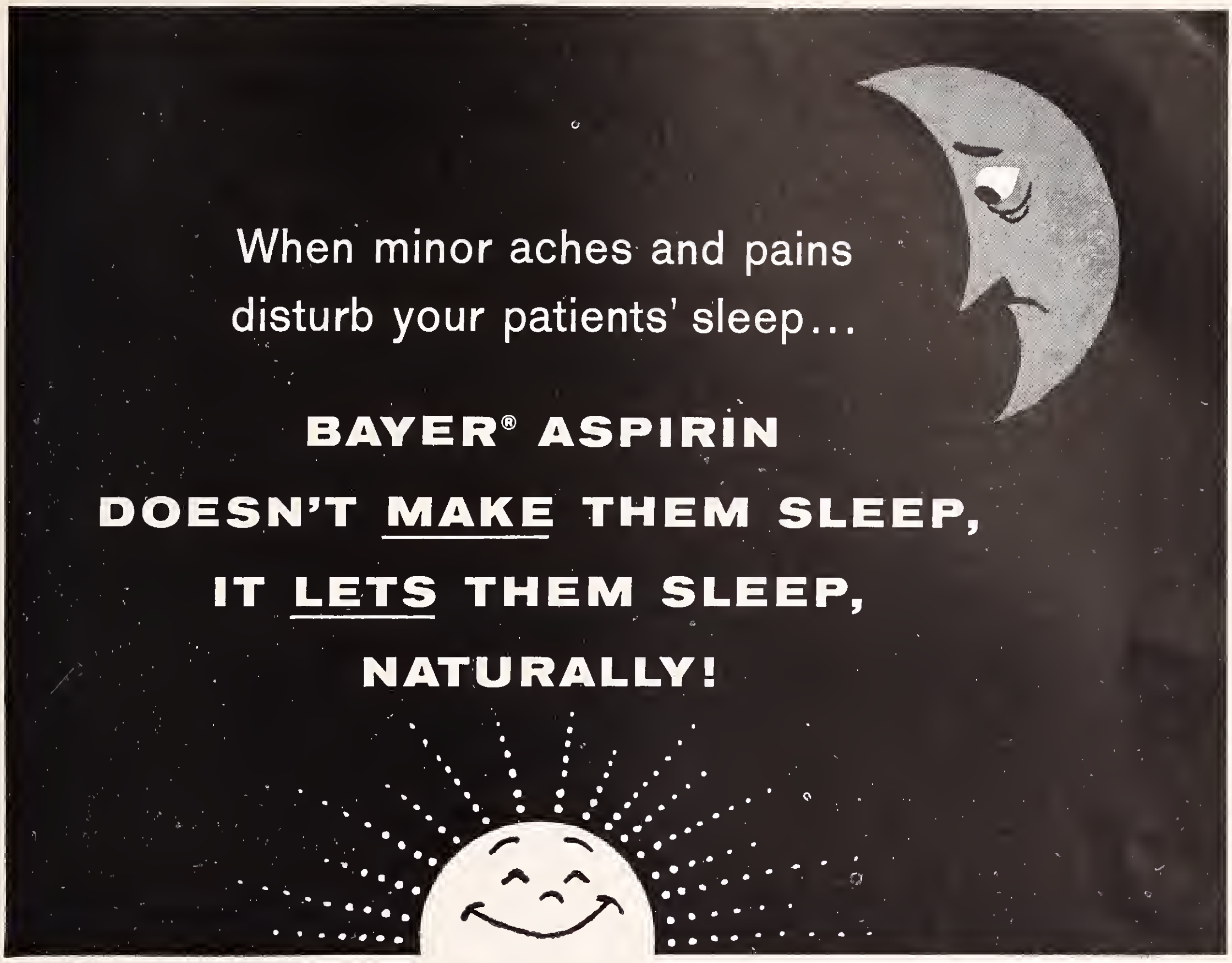

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Report Of Chairman For American Medical Education Foundation

The American Medical Education Foundation Chairmen in each county have been urged to have one fund rising event, to sell AMEF playing cards, and to use Appreciation and Sympathy cards during this past year in order to achieve the National goal of "$5.00 per member" contributions. There has been emphasis that "Every Dollar Raised Goes to Medical Schools."

Our National Chairman has urged that our Auxiliary members give top priority to collecting funds for Medical Schools, as this is *so* important in these times of rising costs and increasing need. Our members were urged to change our nursing scholarships to medical school funds, as we are an Auxiliary to the American Medical Association and the Medical Schools definitely need our assistance.

Counties have had various fund raising projects including card parties, dinner dances, a silent auction and a raffle to help AMEF. Windham County again contributed the largest amount per member of $6.42 and Hartford County the largest total of $909 for which Certificates of Achievement are so recorded. Here is our record by Counties:

COUNTY	MEMBERS	AVERAGE	TOTAL
Windham	45	$6.42	$289.10
Middlesex	63	5.56	350.00
Litchfield	50	3.00	151.20
New London	110	2.80	300.00
Hartford	507	1.80	909.00
New Haven	150	1.60	238.80
Fairfield	240	1.00	245.00
State	1165	2.50	440.80
			$2,923.90

Auxiliary Election

Mrs. Norman H. Gardner of East Hampton became President of the Woman's Auxiliary to the Connecticut State Medical Society at the recent annual meeting.

Officers elected at the meeting to serve with Mrs. Gardner for 1962-63 are:

President-elect—Mrs. Fritz Meyer, Fairfield

1st Vice-President—Mrs. Hugh F. Lena, Jr., New London

2nd Vice-President—Mrs. Ralph Tella, Fairfield

Recording Secretary—Mrs. James F. Jones, Windham

Corresponding Secretary — Mrs. Harry Knight, Middlesex

Treasurer—Mrs. Edwin R. Connors, Hartford

The Woman's Auxiliary to the Connecticut State Medical Society held a Legislative Work Shop on Monday, June 4, 1962 at the New Haven Medical Association building. The meeting was planned for the purpose of: (1) Presenting accurate information about the King-Anderson Bill to key women and Auxiliary leaders. (2) Demonstrating how Auxiliary members can present these facts to others, both Auxiliary members and members of other organizations.

During registration which was in charge of Mrs. Elwood Weise, a sound movie of Dr. Edward Annis speaking about the King-Anderson Bill was shown. "Why Meet Now?" was the subject of a brief introduction by Mrs. Norman H. Gardner, President of the Auxiliary, who explained the need of immediate cooperation by its members in the present legislative crisis. Mrs. Kenneth Brandon, Chairman of the Legislative Committee of the Hartford County

Auxiliary, discussed "How to Speak to a Group." Mrs. Brandon has been very active this past year speaking to various women's groups.

"How to Reach Your Congressmen and Senators" and "How to Draw Up a Resolution" were the subjects discussed by Mrs. Mason Lawson, formerly President of the Woman's Auxiliary to the A.M.A. and now liaison representative of the A.M.A. to women's organizations. She has spent this past year speaking to women throughout the U. S. Letters were written on the spot to Congressmen and Senators following Mrs. Lawson's advice. Next, Mrs. George Rosenbaum, immediate Past President of the Connecticut Auxiliary, discussed "How to Contact Press, Radio and Television," stressing the value of concise, well written, timely letters to the editor.

A question and answer panel discussion on "Booby Traps and How to Avoid Them" was moderated by Mr. John Pompelli, Field Representative, A.M.A. with Mrs. Dewey Katz, Mrs. J. Howard Johnston and Mr. Arnold P. Olson as panelists.

Dr. Ellwood Weise, Chairman of the Committee on National Legislation, summed up the information presented at the Workshop and stressed the importance of each one's participation in this campaign in his talk, "Go and Do Likewise."

Mrs. Philip Cornwell, Legislative Chairman of the Woman's Auxiliary, was the General Chairman, assisted by Mrs. William Richards, Mrs. Louis Soreff, and Mr. James G. Burch of the Connecticut State Medical Society.

It is our hope that the fifty key women attending this meeting will sponsor similar meetings in their own counties and will be better equipped to present medicine's viewpoint on Health Care for the Aged under Social Security whenever the opportunity arises.

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NEW BOOKS IN REVIEW

INSTRUCTIONAL COURSE LECTURES 1961—Volume XVIII. By Fred C. Reynolds, M. D. Published by C. V. Mosby Company, St. Louis, Missouri, 1961, 300 pp. $17.00.

REVIEWED BY DENIS S. O'CONNOR

The post-graduate education of the physician might well be divided into the basic sciences of medicine and the special field of his work. For the orthopaedist who would keep abreast of the developments in his particular field, The Journal of Bone and Joint Surgery is a basic journal of contributions from throughout the world and many of its articles are scientific papers presented at the Annual Meeting of the American Orthopaedic Association and the American Academy of Orthopaedic Surgeons.

However, there are many orthopaedic subjects with which any qualified orthopaedic surgeon is familiar but in which changes are constantly taking place. To know what changes are taking place the progressive orthopaedist and many other surgeons avail themselves of the instructional courses which for many years have been one of the most important segments of the Annual Meeting of the American Academy of Orthopaedic Surgeons. Many courses have been so much in demand that they have been repeated year after year.

New and worthwhile material from the instructional courses is arranged and published each year after the Academy meetings.

The 1961 Volume XVIII issue of 300 pages is divided into five sections; Spine, Fractures, Children's Orthopaedics, Blood Supply of Bone and Miscellaneous. In the familiar and attractive format which has been used since the start of this series, the material is presented in excellent reading type and good illustrations. As a complement to the Journal of Bone and Joint Surgery this annual volume is a must for the library of the orthopaedic surgeon and with profit could be owned by the general surgeon who from necessity must also do orthopaedics.

SOMATIC STABILITY IN THE NEWLY BORN. G. E. W. Wolstenholme and M. O'Connor, Editors. Ciba Foundation Symposium. Boston, Little, Brown and Company, 1961, 393 pp. $10.00.

REVIEWED BY LOUIS GLUCK

This is a valuable edition for both clinician and investigator primarily because of the wide coverage of problems that the newborn faces in his endeavors at extrauterine adaptation. Here in symposium form are brought together twenty-seven persons with varied interests and investigative experience. Cardiovascular stabilization, metabolic problems, homeothermy, anoxia and other problems are considered both in formal presentations and followed by informal discussions published almost verbatim and which often have more relevance to a particular issue than the formal presentation.

Despite the latitude of topics covered one is left with the feeling that much of the time might have been employed with greater profit had adequate consideration been given to basic problems in pulmonary physiology which the newborn must contend with.

In general this is a recommended book that will be profitable to anyone dealing with newborns. Hopefully the clinician will be helped in an orientation toward a more physiologic approach to problems of the newborn.

CLINICAL LABORATORY DIAGNOSIS. By S. A. Levinson and R. P. MacFate. Sixth Ed., Lea and Febiger, Phila., 1961, 227 Illustrations, 11 Plates, 1274 pp. $15.00.

REVIEWED BY ROY BARNETT

This volume represents a praiseworthy but unfortunately unsuccessful effort to cover clinical diagnosis, laboratory diagnosis, pathology, physiology and treatment in a single book. Emphasis is on performance and interpretation of laboratory tests.

There are certain succinct, well-written and up-to-date sections, particularly Immunology and Serology, Blood Groups and Blood Bank Procedures, Hematology and Microbiology. Others bear considerable evidence of having been unchanged for the last 20 years, a busy period in Clinical Laboratory Diagnosis. There are many pointless tables listing values which may be raised or lowered in certain diseases; I cannot imagine under what conditions they would be useful. Some of the tabulated values are incorrect: in Table 22 it is claimed that prothrombin time (despite Vit. K) is reduced in liver cell damage and in biliary obstruction. In Table 21 normal alkaline phosphatase is expressed in Shinowara, Reinhart, Jones units; in Table 22 the abnormal alkaline phosphatase appears in Bodansky units, a comparison which is very confusing. Certain recommended methods are obsolete; correction of Wintrobe hematocrits has been abandoned by Wintrobe and routine pneumococcus typing of sputa is not a practical procedure. Study of feces for tubercle bacilli and determination of whole blood chloride are described, although not recommended; these are useless procedures. Tabulation of the blood count in 8 types of appendicitis is illustrative of the unimportant material which clutters up the pages. It seems scarcely necessary to define diarrhea ("the term implies abnormal frequency and fluidity of the intestinal evacuations") nor chronic constipation (—"consists in the retention of feces in the intestinal canal for an abnormally long time with the result, as a rule, that the stools become unduly inspissated and are passed less frequently than usual.")

There are also important deficiencies. The widely used cyanmethemoglobin method is mentioned but not described; there is no section devoted to procuring appropriate donors for erythroblastotic babies; screening of expectant mothers with panels of cells is not discussed; and the whole concept of Quality Control and standard deviations of methods is omitted.

The reviewer cannot recommend the purchase of this book; there are many better texts and monographs available.

CUNNINGHAM'S MANUAL OF PRACTICAL ANATOMY, 12th Edition, revised by James Couper Brash, Oxford University Press, New York & Toronto, 1957. Vol I—Upper limb, lower limb, 394 pp., 196 figs. (many in color); Vol. II—Thorax, abdomen, 492 pp., 237 figs., 1958; Vol. III—Head, neck, brain, 520 pp., 231 figs. (many in color), 1960.

Reviewed by LOUIS H. NAHUM

In 1874 Daniel John Cunningham became Demonstrator of Anatomy in the University of Edinburgh. Within five years he published the Dissectors Guide. Ten years later Manual of Practical Anatomy. Then came the present series beginning in 1893 and finally this twelfth edition in 1957 revised by Brash.

The first point of interest is that since anatomical nomenclature has gradually undergone modifications from the first to this edition, the author has virtually adopted the Paris Nomenclature and in the indices previous and Paris Nomenclature are both given in order to avoid confusion in the mind of the student.

The second point deals with how to handle the enormous mass of detail that have accumulated in anatomy in recent years. Anatomical knowledge must be based upon factual as well as topographic information. The amount of detail retained in these manuals are enough on the one hand to prevent the student from developing a habit of superficial observation and on the other enough so that they are used as a means of inducing the "sense of topography upon which an appreciation of the value of anatomical detail in elucidating clinical problems may later depend." The manual has certainly succeeded in using detail as a means in bringing into clear view the body as a functioning whole. This has made the value of each structure in its function more readily understandable and at the same time has allowed a considerable reduction in the length of each volume.

In spite of the utilization of detail into a larger scheme of functional anatomy the manual has managed to retain its original character as a complete guide to dissection and has combined this with clear topographical description as well. The manual abounds in surgical anatomy thereby making each part into a functional unit. While these volumes are primarily intended for the dissecting room they are certainly needed by every practitioner who practices minor surgery, every surgeon and surgical specialist as well as the internist who is concerned with pathology of internal organs.

One interesting addition in these volmes is a new waterproof material used for binding so that if the book becomes soiled in the dissecting room it may be cleaned by sponging with soap and water.

FLUORESCENCE ASSAY IN BIOLOGY AND MEDICINE. Sidney Udenfriend, Academic Press, New York, New York, 1962, 505 pp. $14.00.

REVIEWED BY DAVID SELIGSON

Dr. Udenfriend has written a book on "Fluorescence Assay in Biology and Medicine" in order to "make available to both the novice and expert a reference volume containing mainly information of a practical nature." He has emphasized material with which he was familiar through direct experimentation or through personal acquaintance with research workers in this field. This work is an expression of his interest for a period of two decades.

The reader of such a volume is more concerned with content particularly with information which will allow him to solve a technical problem than with style or form. In this regard, Dr. Udenfriend does well in that he has presented the physics, the instrumentation and a variety of methods. The practical details are abundantly presented to save the laboratory worker much time and anguish. The methods apply to a variety of chemicals such as amino acids, proteins, vitamins, steroids, inorganic elements, drugs and poisons. Applications are included in enzymology, protein structure, metabolites, plants and public health.

The index refers to a wide variety of compounds, many of which are of clinical importance and methods for their measurement. These methods can provide data on trace constituents such as corticosterone, serotonin and histamine which prior to the introduction of fluorescence methods were not measured because of such low concentrations. The impact of these fluorescence methods and this book on experimental and clinical method is and will be great.

Doctor's Office

Philip F. Corso, M.D., announces the opening of an office for the practice of plastic and reconstructive surgery at 2660 Main Street, Bridgeport.

Winston C. Hainsworth, M.D., announces the removal of his office for the practice of pediatrics from 132 Mansfield Avenue, Willimantic, to Warrentown, Virginia.

Peter J. Kropp, M.D., announces the opening of an office for the practice of psychiatry at 16 Franklin Street, Norwich.

F. P. Nanni, M.D., announces the opening of an office for the practice of internal medicine and gastroenterology at 150 Prospect Street, Waterbury.

Ludwig Pavlo, M.D., announces the opening of an office for the general practice of medicine at 314 Elizabeth Street, Derby.

Henning Poulsen, M.D., announces the opening of an office for the practice of child and adolescent psychiatry at Ituri Towers, Greenwich.

Richard L. Shelling, M.D., and Frank L. Gruskay, M.D., announce the removal of their offices from 91 Cherry Street to 135 Cherry Street, Milford.

Christopher S. Speer, M.D., announces the opening of an office for the practice of proctology and colon surgery at 85 Jefferson Street, Hartford.

Frederick A. Wies, M.D., announces the removal of his office for the practice of ophthalmology from 423 Orange Street to 696 Howard Avenue, New Haven.

OBITUARIES

Benjamin H. Gottesfeld, M.D.

1914 - 1962

The Hartford community suffered a severe loss in the untimely death of Dr. Benjamin H. Gottesfeld, on March 23, 1962.

He was born in New York on December 30, 1914. After attending the local schools and Columbia University, he received his M.D. degree from the University of Colorado in 1939. His internship and residencies included University of Colorado, School of Medicine, Philadelphia Orthopedic Hospital and Infirmary for Mental Disorders, The Norristown State Hospital, Neurological Institute of The Columbia Presbyterian Hospital, New York, and The Institute of Living, Hartford, Connecticut where he became clinical director.

After three years at The Institute of Living, he began practice in Hartford, specializing in neuropsychiatry. He continued this work until his death. He was chief in neuropsychiatry at The Mt. Sinai and McCook Memorial Hospitals, and he was associated with the other hospitals in the community. He was attending psychiatrist for the Veterans Administration Regional Office in Hartford, and he was the first psychiatrist in chief at the Blue Hills Clinic, a post to which he was appointed because of his authoritative knowledge in the field of alcoholism.

He made many contributions to the medical literature. Some of his articles were: "The Masking of Brain Tumors by Mental Disease"; "Further Studies in Pulmonary Edema Associated With Insulin Shock Therapy"; "An Interpretive Study of Subjective Response to Electric Shock Therapy"; "Narco Analysis and Sub-Shock Insulin Treatment in Anorexia Nervosa"; "Crocodile Tears Treated by Injection on to Sphenopalatine Ganglion with Absolute Alcohol"; "Coordinated Approach to Antabuse Therapy"; "The Use of Curare in Shock Treatment in Cases Complicated by Skeletal Conditions."

He was very community minded, delivered numerous lectures to various professional groups and social workers as well as the Hartford Hospital Tuesday Clinics. He made many radio broadcasts. In these talks, he made a real contribution in deepening the understanding of human behavior.

He had the uncanny knack of being able to extract from patients their innermost confidential thoughts, a feat which would be most difficult by anyone less skilled in the art.

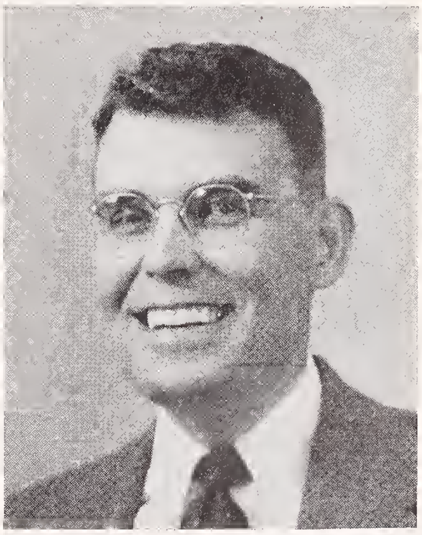
He was adored by his patients and all who came to know him. He was a master at jovial expressions and story telling. He will be sadly missed by his lovely wife, Terry, and his two children, Karen and Terry-Ann, as well as his relatives and friends.

M. Martin Gould, m.d.

Albert S. Field, Jr., M.D.

1914 - 1962

Dr. Albert S. Field, Jr. died in the Grace-New Haven Community Hospital on May 14, 1962 of carcinoma of the pancreas.



Dr. Field was born in Brooklyn, Connecticut on February 2, 1914. He attended Kent School in 1932 and received a B.A. degree from Yale in 1936. After earning an M.D. at Columbia University he interned at Mountainside Hospital, Montclair, New Jersey. During World War II he served in the Medical Corps, A.U.S., European Theater, and while on active duty contracted pulmonary tuberculosis. After his disease was arrested he accepted a residency on the medical service of Grace-New Haven Hospital. Following this he was resident and later staff physician at Gaylord Farm Sanatorium.

In 1955 he returned to Yale as a clinical fellow, becoming a Winchester Fellow in the Winchester Clinic and Cardiopulmonary Laboratory in 1956. Since 1957 he has been on the full time faculty of the Department of Medicine at Yale holding the rank of assistant professor at the time of his death. He was also an assistant attending physician on the Grace-New Haven Hospital staff.

His memberships included Connecticut State Medical Society, New Haven County Medical Association, and the Connecticut Thoracic Society. He was author of a number of papers published in medical journals on diseases of the heart and lungs.

Many medical students have profited from the considerate, painstaking way that he discharged his teaching responsibilities. Although he is remembered by his patients for the kindness and quiet assurance with which he met their needs he was even more widely appreciated for the meticulous skill he achieved in a variety of avocations. These ranged from the arts, music and water color painting, through natural history to the physical sciences including electronics and the chemistry of photography. Dr. Field is survived by his wife, Frances, two daughters Sarah and Rebecca and a son, Allyn.

Frank D. Gray, Jr., m.d.

C. George LaTaif, M.D.
1911 - 1962

C. George LaTaif died at the New Milford Hospital on May 13, 1962, after a brief illness, of a myocardial infarction.

He was born in Danbury, Connecticut on February 17, 1911, the son of Mrs. Freda LaTaif of Danbury, and the late E. K. LaTaif. He attended Danbury High School, where he starred in football, and then attended the University of Beirut, Syria.

He studied medicine at Hahnemann Medical School and served his internships at hospitals in Providence, R. I., and Wilmington, Delaware. He entered general practice in New Milford, Connecticut in 1937, and was one of the first doctors in the area to enter the Armed Forces. He was assigned to duty in Iceland and Iran, and in 1945 was chief consulting surgeon at the hospital at Camp Edwards, Massachusetts, serving with the rank of Major. On returning to New Milford after the war he decided to obtain further training, so took an orthopedic residency at Yale Medical School, St. Raphael's Hospital in New Haven, and St. Charles Hospital for Crippled in Port Jefferson, Long Island. He then returned to the Danbury-New Milford area, where he was attending orthopedic surgeon at the Danbury and New Milford Hospitals.

He was past president of the New Milford Hospital staff, and was a member of the A.M.A., the Litchfield County Medical Society, and the Connecticut State Medical Society.

Dr. LaTaif's main interests were his family and his practice. He enjoyed relaxing at his summer cottage in Fairfield, but above all took special pride in his two daughters, Suzanne and Mary-Elizabeth. Besides his mother and daughters, he is survived by his wife, Helen Green LaTaif. As a man of integrity and dedication to his profession, he has left his mark in many ways on those who were associated with him.

John V. Haxo, m.d.

Albert Levenson, M.D.
1898 - 1962

Albert Levenson died of myocardial infarction on May 11, 1962, at St. Vincent's Hospital, Bridgeport, Connecticut. Though his attack seemingly cut him down during a normally active career, Al had for several weeks felt the need for added rest.

He was born in Boston, Massachusetts, on April 4, 1898, where he attended the public and high schools. He received his premedical work at Tufts Medical School and continued his studies there where he acquired his degree of Doctor of Medicine in 1922.

For a short time Dr. Levenson was engaged in the general practice of medicine in Bridgeport, but soon decided his interests were in the field of dermatology. He received his graduate training in this specialty at the Skin and Cancer Unit of the New York Post-Graduate Medical School and Hospital (now the University Hospital of New York University-Bellevue Medical Center) where he subsequently became a member of the staff, and, like so many physicians of that day who were entering their chosen specialty, shuttled between New York City and Bridgeport over a period of many years.

At about this time he also became a Fellow of the New York Academy of Medicine.

After completing the required period of special training, and as the growth of his private practice increased, Dr. Levenson settled down in that phase of practice which intrigued him most.

He soon became attending dermatologist at St. Vincent's Hospital, where he had served his internship, and subsequently was appointed senior attending dermatologist. For a while Dr. Levenson was clinical instructor in dermatology at the Yale School of Medicine and associate attending dermatologist at the New Haven Hospital.

He was a member of the Bridgeport Medical Association, the Fairfield County Medical Association, the Connecticut State Medical Society, the American Medical Association, the American Academy of Dermatology and the New England Dermatological Society. In 1937 he was certified as a Diplomate of the American Board of Dermatology.

Over the years, it was my pleasure to have been associated with Al at the Bridgeport Hospital at which he was associate attending dermatologist. In more recent years, he was appointed consultant in dermatology at the Fairfield State Hospital in Newtown.

Albert Levenson was a clear thinker, an excellent dermatologist, a fundamentally humble man, and a congenial host as well as an ardent golfer. He was no enthusiast for fanfare, either professionally or personally. Once he had arrived at an opinion he stood for it through thick and thin; but let it always be said, "He was a square shooter."

Al's deep down affection and love for his wife Sylvia, and his affection and concern for his daughters, Louise and Ann, were always manifest by a warm heart which could not be concealed.

His many friends, his grateful patients, and the many physicians who were close to him and knew him well, will miss him deeply. I consider myself privileged to have been one of these.

Ellwood C. Weise, Sr., M.D.

Orin Russell Witter, M.D.

1876 - 1962

A Tribute

To an anxious young couple with an ailing infant the apartment door bell and expected foot steps were welcome sounds. As the doctor entered the room he inspired confidence with his kindly, quiet presence.

In future years, both in various times of crises and in times of shared hours of relaxation, Dr. Orin R. Witter became one of our closest friends. It was not unusual for him to drop in on his after dinner rounds, reminisce a bit, drop off for a brief catnap, and then start on his way with a "Well, sir"—and it *was* well—with us!

This experience of ours was mutiplied many times over, in many Hartford homes no doubt, as the doctor went his rounds healing and comforting in the long years of activity.

The name of Witter was not a newcomer to Connecticut medicine as Orin Witter's father and grandfather both were practitioners in Chaplin. It was there that Orin Russell Witter was born on March 15, 1876. His early education progressed from the local public schools to the Norwich Free Academy, to Yale College, and for his medical degree from the College of Physicians and Surgeons of Columbia University which he received in 1901.

It was Dr. Witter's delight to recall his days as an intern at the Methodist Episcopal Hospital in New York City when, according to custom, he was assigned duty on the horse-drawn ambulance. Always a lover of animals and with a keen understanding of horses this was an experience he enjoyed. In later years he kept his own saddle horse, a temperamental one named "Runt," which was his means of daily morning exercise.

Dr. Witter held many positions of honor during his years as a practitioner in and around Hartford. He was elected to the Presidency of the Hartford (City) Medical Society, and in 1926 to that of the County Medical Association. At that time he was director of its special committee for medical relief in time of disaster. At the Hartford Hospital he served for many years as chief anesthetist, was chief of the Medical Department as well as being a consultant to many other medical institutions. He held memberships in all the local and national medical societies to which he was eligible, was a Fellow of the American College of Physicians, and served on the Connecticut Medical Advisory Board during World War I.

Dr. Witter's vacations from a busy life were not frequent nor prolonged. He loved the camp deep in the Maine woods with a favorite woodsman guide. Golf provided needed recreation and his love of the water was well known. On one occasion on the Maine Coast Island, we recall he took impish delight in appearing before the pre-dinner assembled porch crowd—dressed in his oily blue jeans and rusty cap—much to his wife Gretrude's discomfiture!

Oron Witter's family was a souce of great pride to him. He did not share his wife's keen enjoyment of cards, but was indulgent and generous in her love of entertaining. Their two children, Jack and Charlotte, were their pride and joy as well as in later years, the grandchildren.

The deep love of the out-of-doors as well as an interest in young people was the source of his decision to become Physician at Camp Pioneer, the summer resort of the local chapters of The Boy Scouts of America. During his early retirement he gave much of his zeal to this organization, attending one of the National Jamborees as physician to the New England contingent.

One could not possibly hazard a guess at the sense of great loss of a physician and friend when Orin Witter died on January 15, 1962. His consulting and diagnostic skill was well known far beyond the home boundaries. His capacity for friendship, his undeviating sense of rightness, fair play, and integrity were inborn and lasting. To those of us who were fortunate enough to have been touched by his life we owe a debt of love and gratitude beyond our ability to find words for description.

Frances and Stanley B. Weld

In Memoriam

Dichter, Charles L. — Stamford; University of Maryland Medical College, 1905; practiced medicine in Stamford for 55 years; served with the Selective Service Boards in Stamford during both World Wars; Dr. Dichter was a staff member of both Stamford hospitals and also served as town physician from 1920 to 1933; he was a 50-year member of both the Connecticut State Medical Society, and the Roosevelt Lodge of Stamford, Masonic Order; was one of the founders in 1921 of Temple Beth El and served on its first board of directors; died May 16 at the age of 83.

Finn, Henry R. W. — Guilford; Long Island Medical College, 1935; Guilford Health Director; a member of the American Medical Association and the New Haven County Medical Association; was on the medical staff at Grace-New Haven Hospital; he had a life-long interest in cars, and had received honorary license No. 1 issued by the contest board of the Sports Car Club of America and was a member of the American Association for Automotive Medicine; died May 21 from injuries sustained in a head-on collision at the age of 52.

Grenon, Ovilda A. — East Haven; Georgetown University, 1933; served his internship at St. Raphael's Hospital and for the past 25 years maintained offices in East Haven; he was a member of the New Haven County Medical Association; died May 13 at the age of 53 after a long illness.

Murphy, Thomas B. — Wallingford; Harvard Medical School, 1923; was a practicing physician and surgeon in Wallingford for the last 31 years; he served in both World Wars I and II, and was a lieutenant commander and surgeon in the Navy, serving in the Philippines; a member of the American College of Surgeons; Dr. Murphy was on the staff of the Meriden and Veterans Memorial Hospitals; died May 27 at the age of 65.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26 AUGUST, 1962 NUMBER 8

Irving J. Sherman and William H. Cook **Diagnostic Features Of Herniated Lumbar Disc**

Jane E. Oltman and Samuel Friedman **Clinical Experience With Staphcillin In The Treatment Of Staphylococcus Aureus Infections Of The Skin**

Peyton H. Mead and Claude C. Kelly **Adenomata Of The Adrenal Gland**

Walter A. Schloss **Pencil In The Penis**

Jerome Pollack **The Economic Future Of Medicine**

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rotation;
s, an

rag time (-tīm'), n. Music. a Rhythm characterized
by more or less continuous syncopation in the melody.
b Colloq. A type of music (ragtime music) char-
acterized by a strongly syncopated melody superim-
posed upon a regularly accented accompaniment.
rag'weed' (-wēd'), n. a Eng. The ragwort. b U. S.
Any of several coarse herbs (genus *Ambrosia*) typi-
fying a family (Ambrosiaceae, the ragweed family)
having heads of flowers subtended by an involucre
of bracts; esp. a very common weed (*A. elatior*)
with deeply lobed or dissected leaves; and the **great,**
or giant, ragweed (*A. trifida*), with trilobate leaves.
The cockleburs (see COCKLEBUR) also belong to this
family.
ag'wort (-wûrt'), n. Any of several plants (genus
Senecio) of the aster family, as the **golden ragwort**
S. *aureus*) of the United States, having an open
rymb of yellow-rayed flowers.
a, ra'yah (rä'yȧ), n. [F., fr. Turk. *ra'aya*, fr. Ar.
aya, coll. sing. *ra'iyah*, flock, herd.] A non-Mos-
m subject of Ottoman Empire.
(rad), n. [f *road*. See ROAD raid, way.]
A hostile rsion; a foray; orig.,
inroad men; hence, a
dden or force of any

Connecticut Medicine

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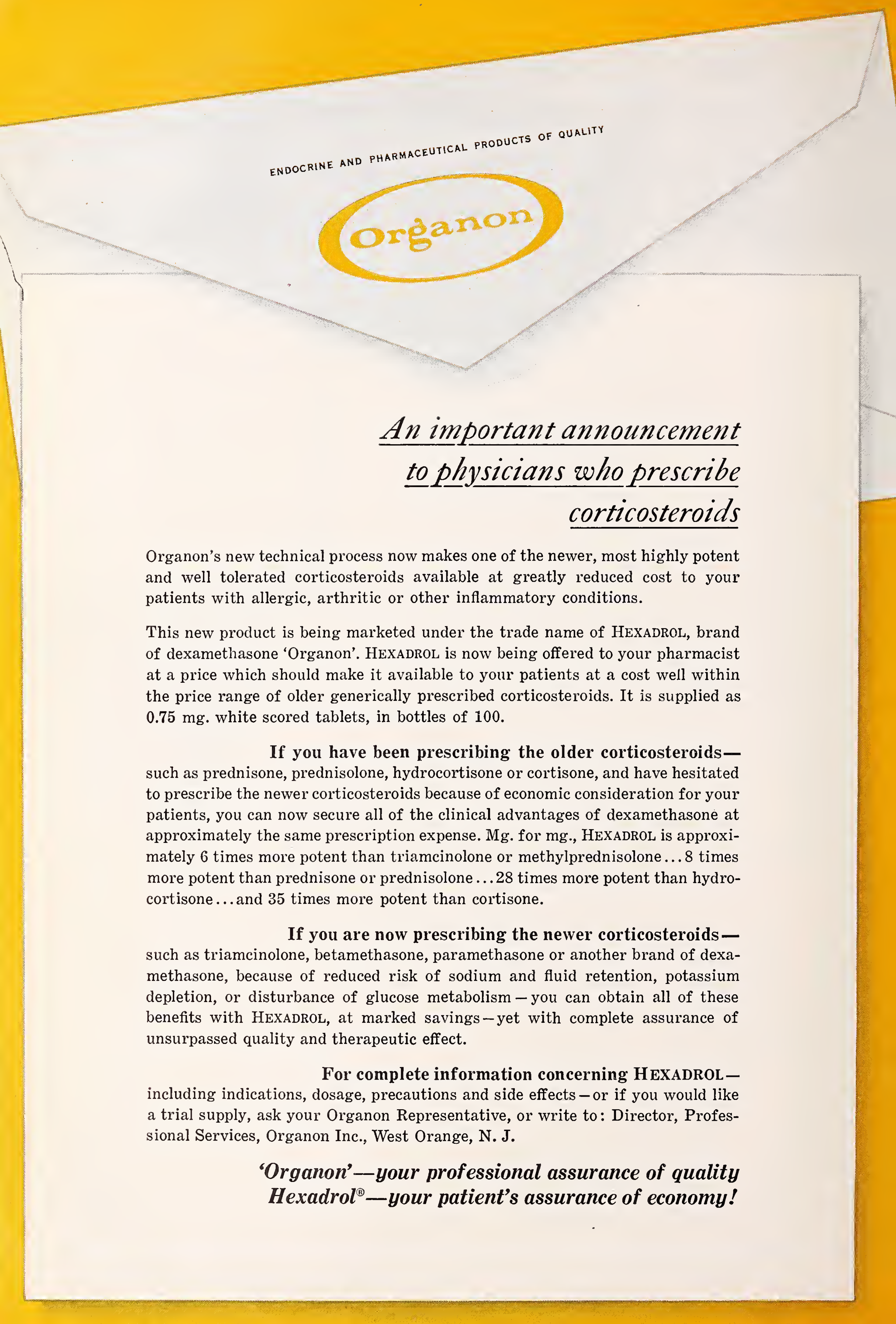
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Diagnostic Features Of Herniated Lumbar Disc

(Survey Of 1000 Consecutive Surgically Treated Cases)

Irving J. Sherman, m.d.
William H. Cook, m.d.
Bridgeport

Low back pain is one of the ailments frequently encountered in medical practice. In most cases, a short course of rest, support and local heat produces lasting relief. Often, however, the problem is serious and persistent, and in these cases the basic pathology is most often a herniated intervertebral disc. Because of the marked frequency of this condition, it is considered worthwhile to report the diagnostic features of the 1,000 consecutive cases of surgically verified herniated intervertebral disc which we are currently studying.

Herniated intervertebral disc, ruptured disc, slipped disc, and herniated nucleus pulpusus are one and the same. During the past 200 years a number of scholarly articles have been published concerning the symptom complex caused by this pathology although the pathology itself went completely unrecognized. 100 years ago LaSegue[1] devised tests for "sciatic radiculitis" which are still used today in examining for nerve root compression due to herniated lumbar disc. Later there were reports of the surgical removal of "chondromatous tumors involving the intervertebral discs." It was not until 1934, however, that Mixter and Barr[2] recognized the condition of herniated intervertebral disc to be the pathological entity we acknowledge today as the most common cause of low back pain with sciatica. It is of very frequent occurrence, and the layman now speaks as casually of "slipped disc" as he used to mention the now obsolete "sacroiliac."

This diagnosis is obvious in the full blown severe case with low back pain, sciatica, a spastic back with reversal of the lumbar lordosis and scoliosis, acutely positive straight leg test, diminished ankle or knee reflexes on the affected side, sensory loss of dermatome distribution in the lower extremity, and perhaps a foot drop. However, the average patient today will not tolerate his pain and disability long enough to permit the condition to become this extreme, and demands relief before his clinical picture has become clear-cut. In these cases, the diagnosis may be obscure.

As always, history is very important. The location of the pain is critical. Pain of true sciatic distribution suggests involvement of the fourth disc or the lumbosacral disc. Anterior thigh pain indicates a higher level. The mechanical nature of the disorder (damage to a weight bearing structure and nerve root compression) is broadly hinted at when the patient states that his pain is aggravated by activity, bending, coughing and sneezing. But a smaller though considerable number of patients report their pain to be less if they continue walking and moving about than when they remain seated or at

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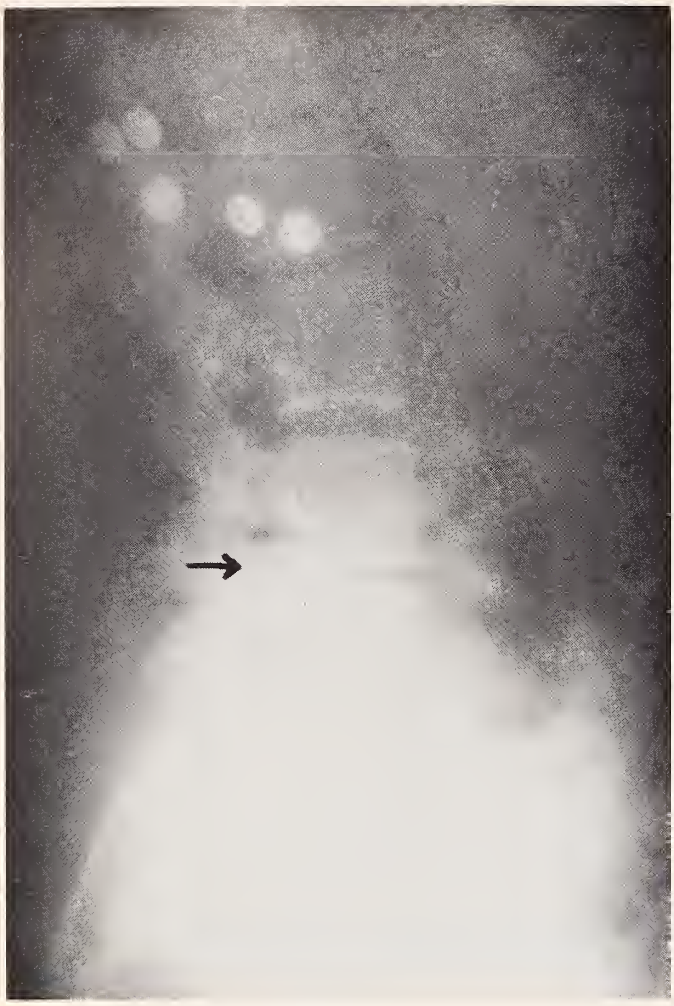

FIGURE I

Lateral lumbosacral spine x-ray showing narrowing of L 4-5 intervertebral space (arrow). Note normal height of space above.

bedrest. A history of trauma is not uniformly present. Bradford and Spurling[3] found it in only one-half of their cases. While the condition may be intractable, most cases have exacerbations and remissions. Urinary retention occurs only in very severe cases with bilateral involvement. A history of malignancy or possible malignancy would be of paramount importance as nerve root compression by disc or by tumor can be indistinguishable. A history of diabetes suggests the possibility of a diabetic neuropathy. The patient may report muscular weakness or sensory loss in the lower extremities.

All of the 1,000 patients in this series had routine clinical examination and routine lumbosacral spine X-rays. 786 patients also had myelogram tests. 100 patients (most of them previously myelogrammed) had discogram tests.

CHART I
CLINICAL FINDINGS IN 1,000 CASES OF HERNIATED LUMBAR DISC

1.	Back pain	96.6%
2.	Sciatica	94.1%
3.	Positive straight-leg test	95.3%
4.	Lumbar tilt or scoliosis	38.3%
5.	Loss of lumbar lordosis	37.0%
6.	Sensory changes	48.0%
7.	Reflex change	40.1%
8.	Motor loss	19.4%

The routine examination included observation of the configuration of the spine and the range of motion of the lumbar spine in each of the four cardinal directions. The presence or absence of pain with each movement was noted. The patient was treated for lumbar and sciatic tenderness. The strength of the major muscle groups of each lower extremity was tested against the weight of the patient's body by having him walk on tip-toe, then on his heels, then with the knees flexed. Thighs and calves were measured for atrophy. Sensation over the lower extremities and in the saddle area was tested with pin prick and with the light touch of a camel's hair brush. The knee-kicks and ankle-jerks were tested. The straight leg raising and LaSegue sciatic stretch tests were carried out to check for evidence of sciatic nerve root compression. Flexion of each thigh on the abdomen and rotation of the hip joints were checked, with particular reference to possible hip joint pathology. Additional tests up to and including a complete neurological evaluation were required by the history and findings in certain cases. For example, brain tumors have been found in two patients (not in this series) who presented with a clinical picture suggestive of disc complete with foot drop, histories of back injury, and compensation claims.

CHART I lists common clinical findings. Although all of these cases were severe enough to require surgery, it is apparent that less than half of the patients presented any one neurological abnormality. Analysis reveals that *34 per cent had no motor, sensory or reflex changes.* This indicates that actual root damage was present in 66 per cent of the cases, although nerve root irritation causing sciatica was present in 94.1 per cent. It is of considerable interest that 5.9 per cent had no sciatica, and that 3.4 per cent had no low back pain at the time of examination. The lack of a convincing clinical picture in many cases, and the subjective nature of most of the clinical evidence, explains the frequent use of diagnostic X-ray procedures.

CHART II
X-RAY FINDINGS IN 1,000 CASES OF HERNIATED LUMBAR DISC

Narrowing of intervertebral space	48.9%
(disc rupture found at 75% of these)	
Osteoarthritic changes	45.1%
Tilt or scoliosis reported	15.4%
Completely normal X-Ray	19.3%

CHART III

1,139 DISCS EXPLORED IN 786 MYELOGRAMMED PATIENTS

Confirmed Positives	64.6%
False Negatives	25.5%
False Positives	9.9%

The routine lumbosacral spine X-ray findings are listed in CHART II. The normal congenital narrowing of the lumbosacral intervertebral space found in many individuals explains the fact that disc herniations were found at only three-fourths of the spaces reported to be narrowed by X-ray. If one adjusts for this and the coincidental presence of disc herniations at congenitally narrow lumbosacral spaces, it becomes apparent that only about 25 per cent of disc herniations can be demonstrated by changes apparent in routine X-rays. These films are most valuable in disclosing the occasional presence of neoplastic bone lesions and congenital anomalies such as spondylolisthesis.

CHART III indicates the correlation of myelogram findings with operative findings. Despite the degree of inaccuracy, myelography was found to be very important not only with regard to verifying the diagnosis, but also with regard to localization of the lesion, particularly upper lumbar herniations and multiple herniations. It was also essential for detecting cauda equina tumors which were masquerading as disc herniations and would not have been disclosed by the usual extradural surgical exploration for disc. However the high degree of inaccuracy must be kept in mind.

Discography has been valuable in those who have neither a definite clinical picture nor definite myelographic evidence of disc herniation, but who have in intractable pain and persisting disability which may be due to herniated disc or to psychognic factors. In these cases the discogram test, performed by injecting Diodrast directly into the nucleus pulposus, obviated the need of exploratory surgery in patients who had no disc herniation.

CHART IV indicates the frequency of multiple and bilateral herniations in this series.

CHART V demonstrates the distribution of disc pathology in this series.

Summary

The diagnosis of herniated lumbar intervertebral disc must be considered in all cases of persistent or recurrent low back pain and/or radiating lower extremity pain. The latter is usually of sciatic distribution (posterior or lateral calf and/or posterior or lateral thigh) but may be of anterior thigh distribution if the lesion is mid or upper lumbar in location.

In this series of 1,000 consecutive cases of severe herniated intervertebral disc verified by surgery, one-third of the cases presented little more than evidence of back pain radiating to a lower extremity, which could be aggravated by movement of the back and by the straight-leg raising test. The remaining two-thirds presented also evidence of nerve root damage demonstrable as sensory loss, diminution of a tendon reflex, or motor loss. These signs occurred individually or in combinations.

CHART IV

Single unilateral discs	602 patients
Single bilateral discs	115 patients
Multiple discs	283 patients

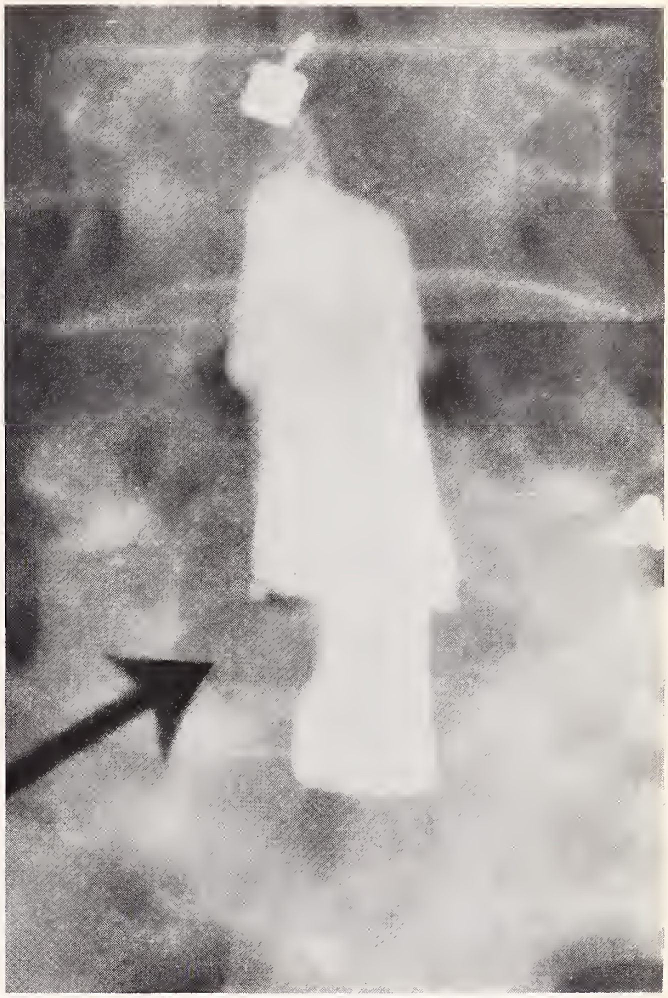

FIGURE II

A-P View. Myelogram revealing indentation (arrow) of Pantopaque column by right-sided herniation of lumbosacral disc.

CHART V

LOCATIONS OF DISC HERNIATIONS (1,311)

L 2-3	13	1%
L 3-4	107	8%
L 4-5	604	46%
L5-S1	585	45%

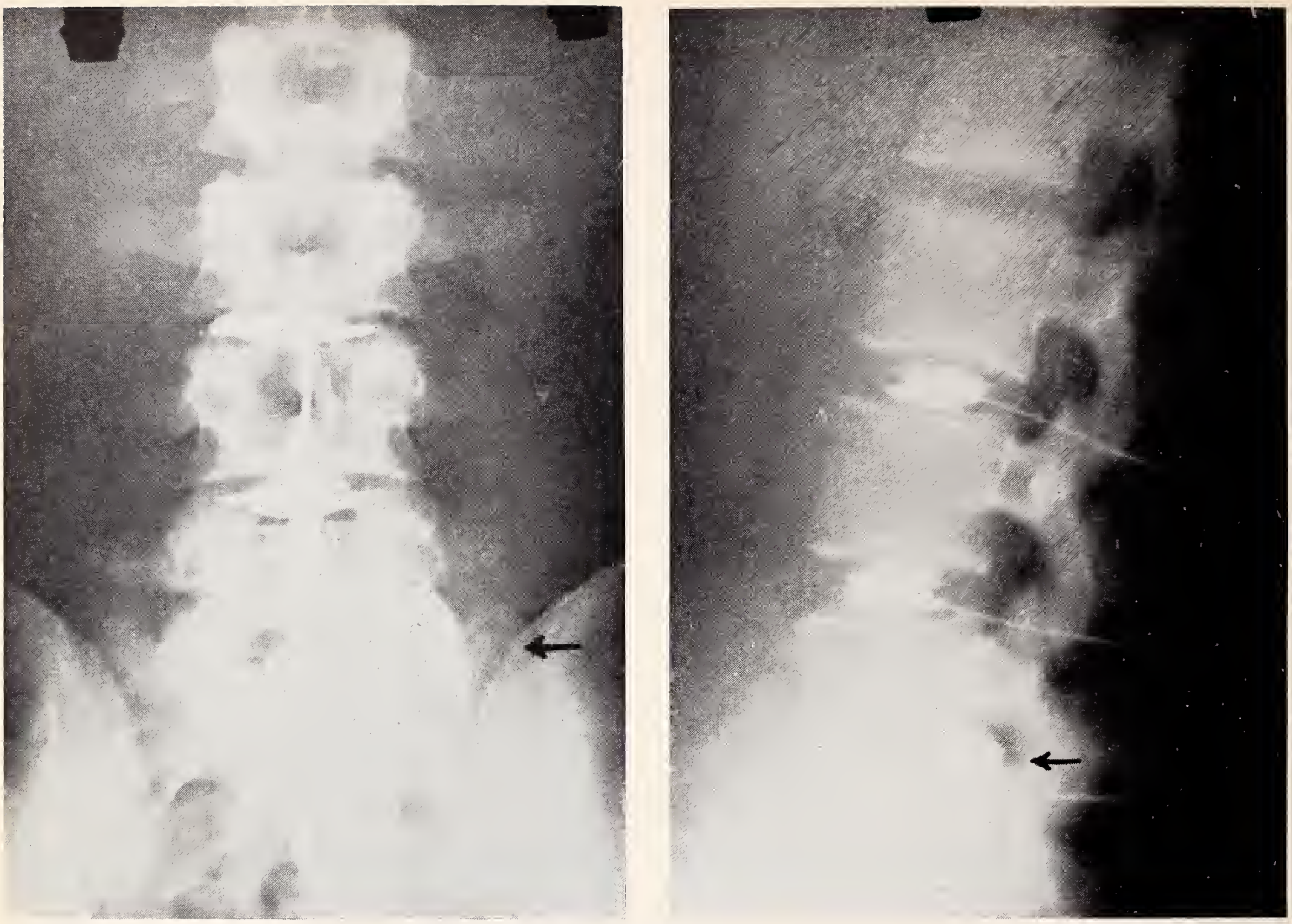

Figure III

Discogram showing extravasation of injected Pantopaque at the site of rupture of the L5-S1 disc, right (arrow). Note normal discs above.

While presenting intervertebral space narrowing as direct evidence of disc herniation in less than 25 per cent of the cases, routine lumbosacral spine films are considered essential to demonstrate the bony anatomy, evidence of neoplasms, and such congenital anomalies as spondylolisthesis.

Although possessing a limited degree of accuracy, myelography has proved valuable not only with regard to verification of the diagnosis of disc herniation, but also with regard to localization, demonstration of multiple herniations, demonstration of occasional upper lumbar disc herniations, and the demonstration of neoplasms. Because of its limited degree of accuracy, however, myelogram films must be interpreted cautiously and must be considered as only an adjunct to the clinical examination.

In selected cases, discography has been used to establish a definite diagnosis where the only alternative would have been exploratory surgery.

REFERENCES

1. LaSegue, C.: Considerations sur la sciatique. Archilves Generales de Medecine, 2: 558-580, 1864.

2. Mixter, W. J. and Barr, J. S.: Rupture of the intervertebral disc with involvement of the spinal canal. New England J. Med., 213: 385-393, 1936.

3. Bradford, F. Keith and Spurling, R. Glen: The intervertebral disc. C. C. Thomas, Springfield, Ill., 1947.

Clinical Experience With Staphcillin In The Treatment Of Staphylococcus Aureus Infections Of The Skin

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with the technical assistance of
HILARY J. MORRIS

In recent years, infections due to staphylococcus aureus have constituted an increasing problem in hospitals throughout the country. The present communication is a brief report of our experiences with staphcillin* in the treatment of s. aureus infections of the skin and superficial tissues, during the past few months. These infections included conditions such as carbuncles, boils, abscesses, pustules, pyodermia and infected ulcers. In each case s. aureus had been isolated as the sole or major offending organism.

It has been indicated[1] that staphcillin is effective against strains of staphylococcus aureus which are resistant to penicillin G. because of its stability to staphylococcal penicillinase. The drug is absorbed rapidly after intramuscular administration. Previous work[2] has indicated that peak concentrations in the blood are attained at the one hour level as a rule, generally ranging between 8 to 20 mcg./ml. after the intramuscular injection of one gram. The drug is also excreted rapidly so that at the four hour level blood concentrations are generally 1 to 2 mcg./ml.

The present series included 34 patients—30 males and 4 females—resident at the Fairfield State Hospital. This does not represent any actual difference between the sexes in incidence of infections but merely the authors' primary attention to the male medical service. Because of recurrences there was a total of 46 treatment periods. Staphcillin was administered intramuscularly in dosage of 2 to 6 grams daily (i.e., 1 gram q 12° to 1 gram q 4°), partly in an effort to delineate the minimal effective daily dose. The few patients who received only 2 grams daily exhibited rather slow recovery, and it was concluded that this dosage was relatively ineffective. The majority of patients received either 3 grams (1 gm. q.8 hours) or 4 grams (1 gm. q.6 hours) daily. The duration of treatment varied from 4 to 25 days, and total dosage in each period varied from 12 to 78 grams. One patient received a combined total of 156 grams during three treatment periods. No other therapy was administered. All patients were confined to an isolation unit.

Satisfactory absorption and blood concentration of the drug were indicated by several random measurements. Peak levels in the blood were obtained at 1 to 2 hours; they were in the range of 9 to 10 mcg./ml. In most instances blood levels were <0.5 mcg./ml. at the four hour level.

With respect to clinical results, it was noted that the drug effected a definite increase in the rapidity of healing of lesions. Boils and abscesses receded much more promptly, drainage was reduced, and in some instances lesions involuted without any drainage at all. Under previous therapeutic measures of local hot packs, with or without other anti-

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* Generous supplies of staphcillin were furnished by Bristol Laboratories, Syracuse, N. Y.

Sponsored by State University of New York, Upstate Medical Center, Syracuse, New York.

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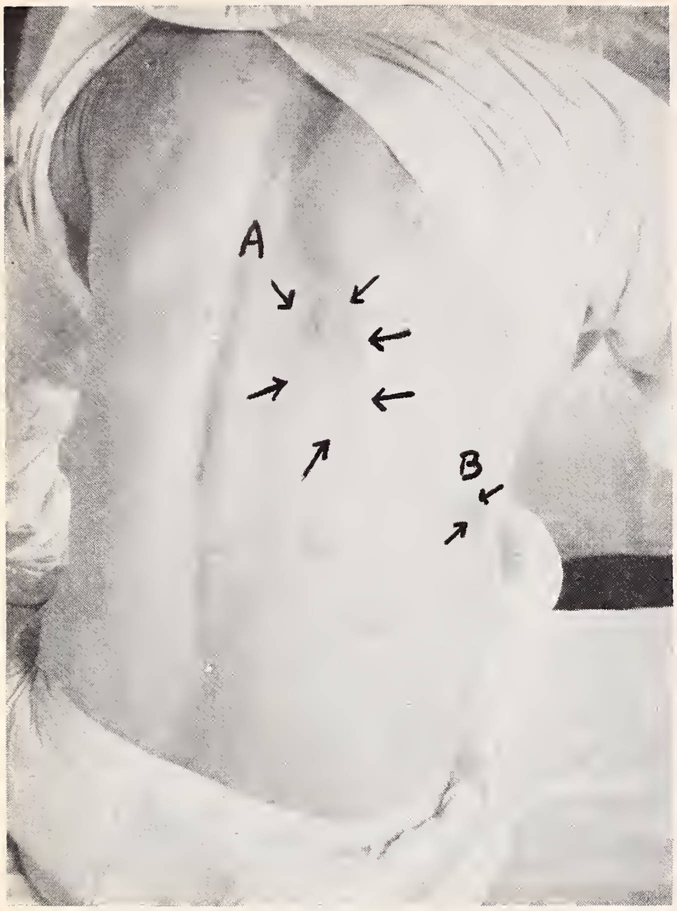

Figure I

biotics, these infections usually receded slowly and drainage continued for an extended period. Larger boils or carbuncles frequently left rather extensive scarring and/or pigmentation of the skin. This was definitely diminished under staphcillin therapy. Figure I illustrates this situation.

Lesion A, treated by ordinary methods, was followed by significant scarring and pigmentation while lesion B, which was originally almost as large as the previous carbuncle, was treated with staphcillin. It involuted quite rapidly, with scant drainage, and left no significant scarring. Thus the immediate clinical results of treatment of these infections with staphcillin were deemed to be satisfactory.

There were no significant complications, and side-effects were few. One patient developed a fever of 104° on the tenth day of treatment. Temperature subsided to normal within 36 hours of cessation of the drug. One patient developed an erythematous eruption on the fourth day of treatment; however, he received the drug again three weeks later without difficulty. Another elderly individual developed a macular rash on the 15th day of treatment. Local irritation at the site of injection was absent.

Laboratory studies revealed that bacteriological cure, namely disappearance of S. aureus from the local area after treatment, was effected in approximately one-third of the cases only. In the remaining instances, S. aureus persisted, with the superimposition of other organisms as well in some cases.

The most disappointing aspect from the clinical standpoint was the failure of staphcillin therapy to prevent, or reduce the frequency of recurrent infections, at least in the present hospital setting. Thus 15 patients (not all of whom were again treated with staphcillin), or almost 45 per cent, had one or more recurrences. These followed at periods ranging from 10 days to three months after termination of the previous treatment. There did not appear to be any definite correlation of incidence of recurrent infections with the amount of drug previously administered, or with elimination or persistence of S. aureus. It should be noted, however, that our group of patients was composed of psychotic individuals, many of them confused and untidy in habits, or lacking any interest in maintaining the usual standards of personal hygiene.

In brief summary, therefore, it is our conclusion that staphcillin is helpful in the treatment of staphylococcus areus infections of the skin and superficial tissues as it hastens recovery and minimizes local reaction and scarring. However, it does not prevent recurrence of infection, at least in the hospital setting described.

REFERENCES

1. Gourevitch, A., Hunt, G. A., Pursiano, T. A., Moses, A. J., and Lein, J.: Microbiological studies on Penicillin X-1497. Conference on "A new synthetic penicillin," Sept., 1960.

2. Finegold, S. M., Monzon, O., Blackman, B. T., Dangerfield, H. G., and Hewitt, W. L.: Laboratory experiences with Penicillin X-1497. Idem.

Adenomata Of The Adrenal Gland

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ADRENAL cortical adenomas are usually single and unilateral, and are most frequently seen in childhood and adolescence. Clinical manifestations depend not only on the size and position of the tumor, but on its hormonal production. Functional alterations are more common in early life and are often absent in adults.[7] Hormones produced by these tumors include mineralocorticoids, glucocorticoids and sex hormones.[8,11] Therefore, endocrine alterations include various combinations of aldosteronism,[4,10] Cushing's syndrome,[6,12] female virilism and pseudohermaphroditism, male sexual precocity or feminism, premature dentition, premature epiphyseal closure with dwarfism, and may even simulate pheochromocytoma.[2]

On the other hand, the diagnosis of non-hormonal cortical adenomas depends on the presence of a mass or of pain.[1,3,5] They may grow silently until they reach great size. The largest one reported in the literature weighed 4200 grams.[7]

Report Of Case

C. J. (McCook Hospital #A 36041) 26 year old Negro female domestic admitted 8/23/60 with chief complaint left flank pain. Review of systems was negative except for frequent epistaxis. She was Gravida O Para O with regular menses, and there were no gastrointestinal symptoms. Physically, she was a thin, hirsute young woman with blood pressure 120/70. In the right upper quadrant, there was a melon-sized, smooth, rubbery, non-tender, well-demarcated fixed mass, which did not move with respiration. (Fig. I) There was also a pelvic mass suggestive of uterine leiomyoma.

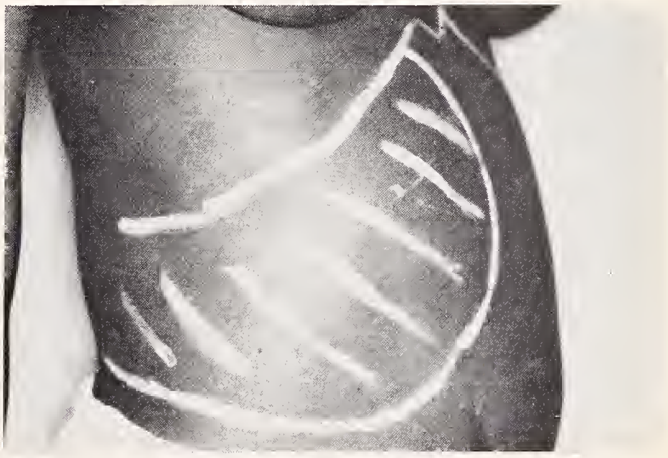

FIGURE I
Preoperative Photograph

Laboratory studies revealed 1 + pyuria and 1 + albuminuria, micrococcus on urine culture, hematocrit 33, and white blood cell count 5000. Blood urea nitrogen was 6, fasting blood sugar 82, sodium 135, potassium 3.6, chloride 97, Co_2 19, albumin 5.3, globulin 3.5, thymol torbidity 3.0, alkaline phosphatase 8 KA units, bilirubin .6, prothrombin time 65 per cent, BSP 3.5 per cent retention, 17 ketosteroids 2.6 mg./24 hours. Electrocardiogram was normal, pregnancy test negative, and cervical papanicolaou smear class III.

X-rays, including gastrointestinal (Fig II) and gallbladder series, barium enema (Fig. III), intravenous pyelogram, retrograde pyelograms (Fig IV), and retroperitoneal air insufflation confirmed the presence of a large right upper quadrant retroperitoneal mass.

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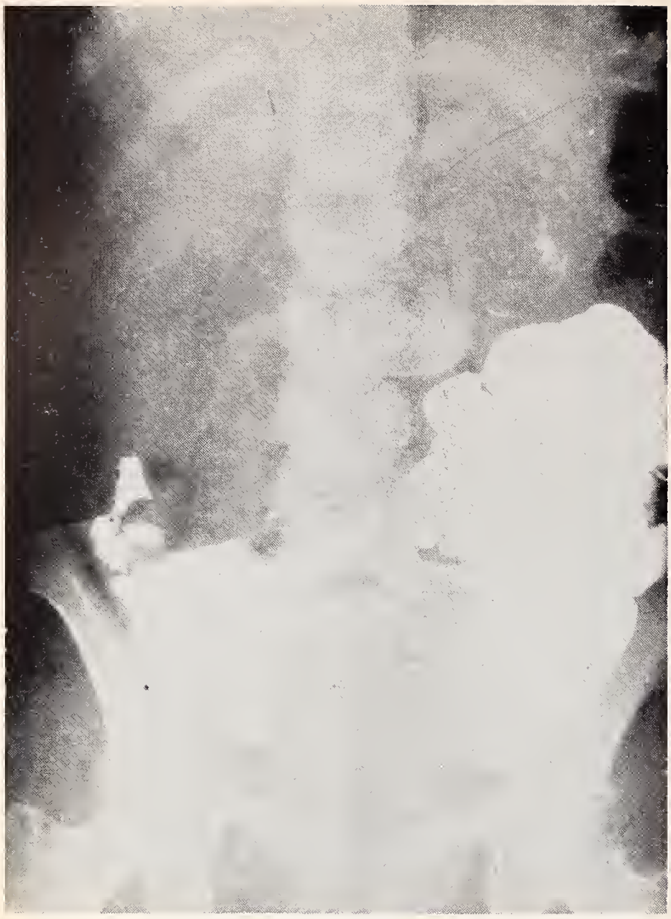

FIGURE II. G.I. Series.

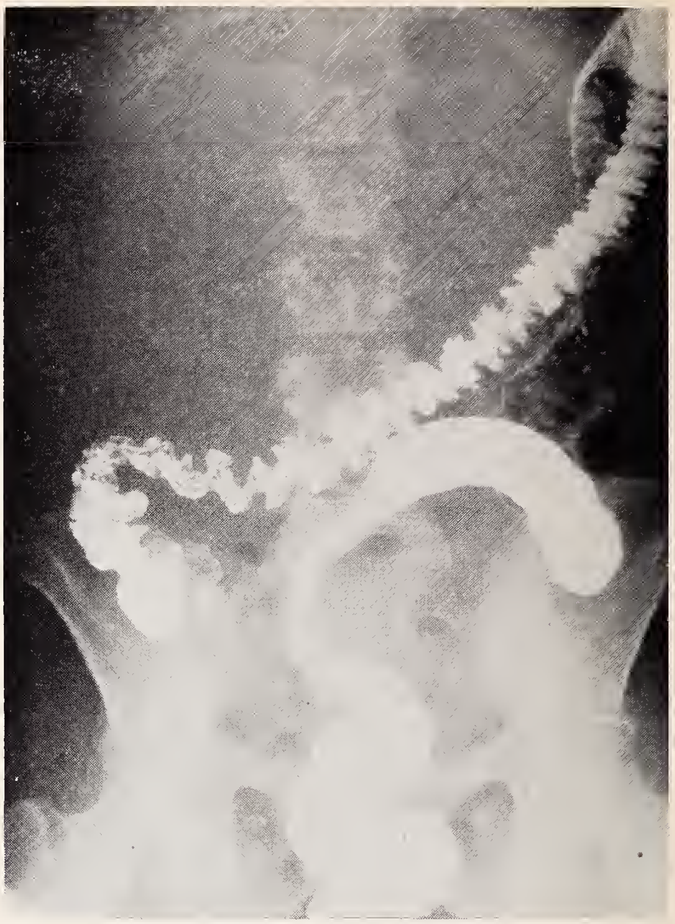

FIGURE III. Barium Enema.

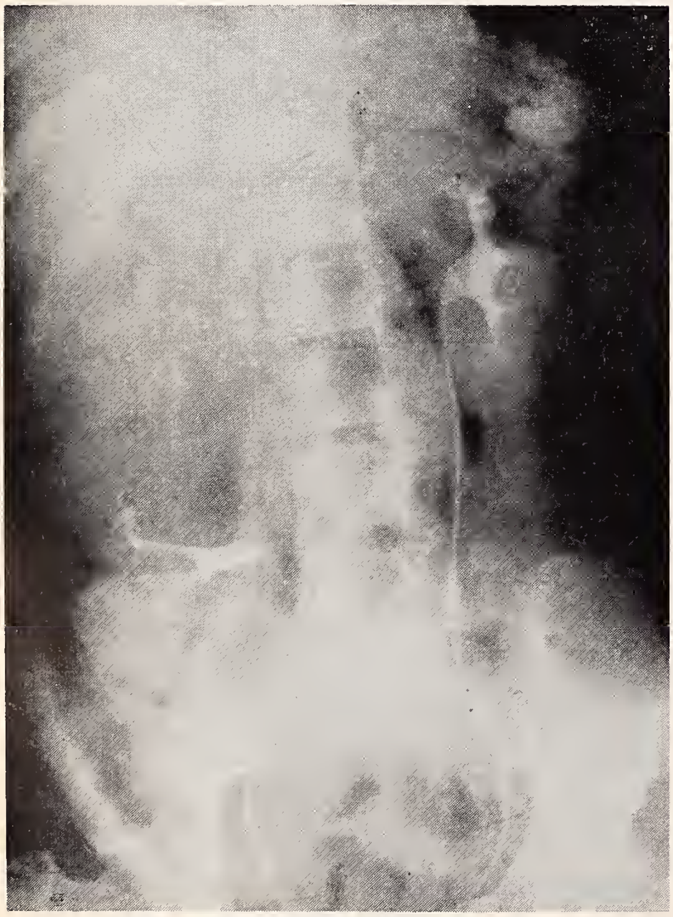

FIGURE IV. Retrograde Pyelogram.

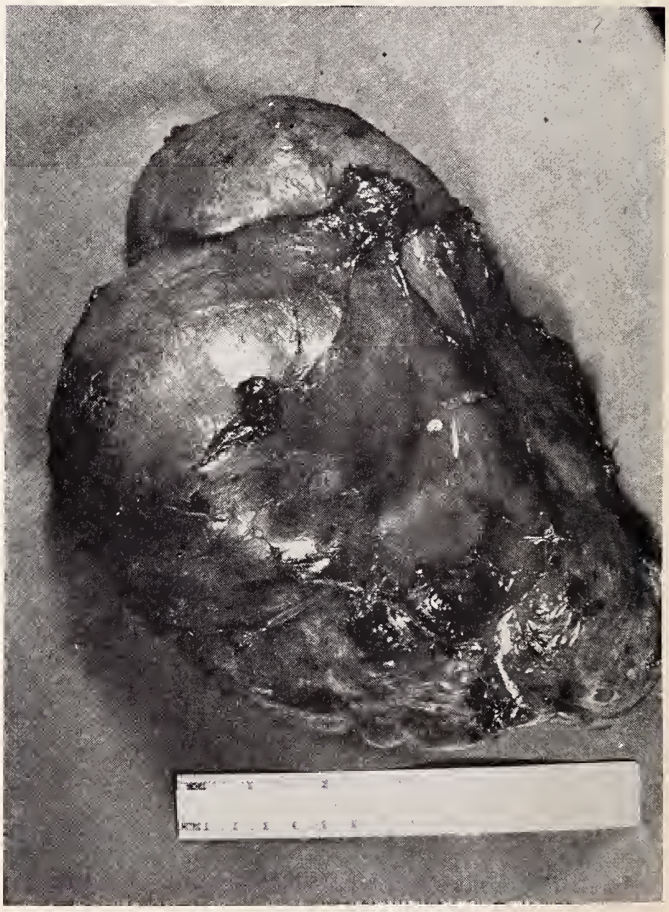

FIGURE V. Gross Specimen.

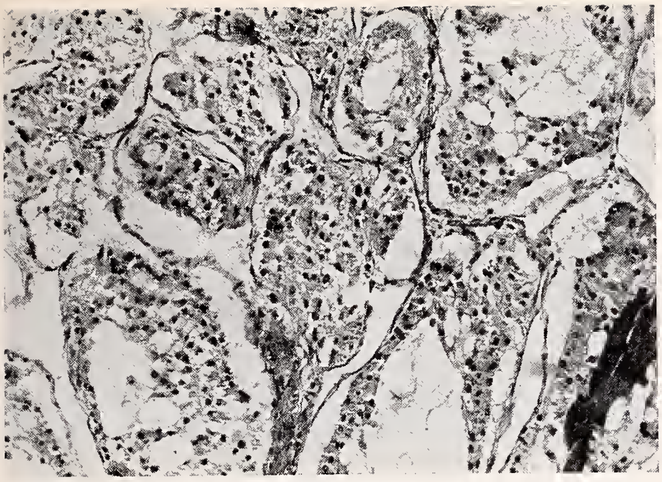

Figure VI
Photomicrograph

After preparation with 500 cc. packed red blood cells, she was explored through a long right subcostal incision on 9/2/60. The large mass occupied most of the right abdomen, extended across the midline, and was found to be adherent to the liver, diaphragm, right kidney and vena cava. The intimate attachment to the vena cava resulted in several episodes of hemorrhage in this area, necessitating replacement of 4000 cc. of whole blood. The right kidney was sacrificed because of its apparent involvement. The specimen measured 18 x 10 cms., weighed 1630 grams, (Fig. V) and on section was a typical benign cortical adenoma (Fig. VI), adherent to but not invading the kidney.

Her postoperative course was satisfactory, with a normal urine output, maintenance of normal blood urea nitrogen and electrolyte concentrations, and a final hematocrit of 44 after an additional 3500 cc. whole blood. On 9/11/60 she developed right lower lobe pneumonia due to alpha hemolytic streptococci which responded both clinically and roentgenologically to tetracycline. She was discharged assymptomatic on 9/20/60. Follow up in the outpatient clinic was unremarkable except for menorrhagia.

Readmission on 11/10/60 was prompted by chills, fever, hemoptysis and chest pain. She was found to have bilateral lower lobe pneumonia due to alpha hemolytic streptococci and pneumococci, confirmed on X-ray. Temperature was 100, white blood cell count 10,500 with 73 per cent polymorphonuclear leucocytes, hematocrit 22, fasting blood sugar 103, blood urea nitrogen 12.5. She was toxic, disoriented, hypotensive, and pursued a relentless down-hill course in spite of transfusion of 1500 cc. of whole blood, O_2 tent, penicillin, chloromycetin, and prednisone. She died on 11/12/60. Autopsy was refused, but the final clinical diagnosis was overwhelming pneumonia complicated by marked anemia. The presence of latent adrenal insufficiency as a contributing factor in her death is impossible to evaluate.

Discussion

This case illustrates the problems in access to the retroperitoneum, with its many important anatomical structures, including the origin and return of all the blood supply to the abdomen and lower extremities. Surgical approaches depend on the size and location of the tumor, and may be either retroperitoneal or transperitoneal. Of the available routes, including lumbar, abdominal, and thoracoabdominal, many prefer the latter for the upper and mid abdomen.[9] In this case, the transperitoneal subcostal incision extending well into the flank, together with an operating team of four, provided fairly adequate exposure. Although the dissection was moderately difficult and the blood loss relatively great, the patient was spared the additional morbidity of the thoracic incision.

Summary

A case of successful abdominal extirpation of a large adenal cortical adenoma is presented, and the recent literature is briefly reviewed.

REFERENCES

1. Angulo, R.: Recurrent non-functioning tumor of adrenal capsule. J. Urol., 78 (4) 309, 1957.

2. Burak, N., Loesch, J., and Costa, J.: Adrenocortical adenoma clinically simulating pheochromocytoma. N. Y. State J. Med., 59 (9) 1849, 1959.

3. Cahill, G. F.: Adrenalectomy for adrenal tumors. J. Urol. 71 (2) 123, 1954.

4. Crane, M. G., Vogel, P. J., and Richland, K. J.: Observations on a presumptive case of primary aldosteronism. J. Lab. Clin. Med., 48 (1) 1, 1956.

5. Gordon, W.: Non hormonal adrenal adenoma. J. Urol., 75 (4), 579, 1956.

6. Greenblatt, R. B., Manouton, J. M., Zimmerman, A. M., and Lucas, W. T.: Cushings syndrome in infancy. AMA J. Dis. Children, 94 (6) 691, 1957.

7. Karsner, H. T.: Tumors of the adrenal. Armed Forces Instit. Path. Section VIII Fascicle 29, 1950.

8. Keller, M., Hauser, A., and Walser, A.: Virilizing adrenal adenoma with increased urinary estrogens and 17KS. Isolation of steroids from the tumor. J. Clin. End. Metab., 18 (12) 1384, 1958.

9. Pack, G. T. and Ariel, I. M.: Tumors of the soft somatic tissues. New York, Hoeber-Harper, 1958.

10. Ross, E. J., Crabbe, J., Renold, A. E., Emerson, K., and Thorn, G. W.: A case of massive edema in association with an aldosterone-secreting adrenocortical adenoma. Am. J. Med., 25 (2) 278, 1958.

11. Scarpa-Smith, C., Thorton, N., Caffery, E. L., and Greenblatt, R. B.: Virilizing adrenal tumors in children. AMA J. Dis. Children, 97 (1) 78, 1959.

12. Weidner, M. G. and Towery, B. T.: Adrenocortical adenoma with Cushings syndrome in infancy. Surgery, 39 (3) 492, 1956.

Pencil In The Penis

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Many foreign bodies have found their way into the urethra and bladder, or have been introduced therein by patients themselves, by surgeons, friends and opponents. The list is truly astounding, including animal, mineral and vegetable (Table I).

The portal of entry may be through the skin, such as by missiles or in accidents, fights or surgery; occasionally it may be through the mouth, migrating from bowel to bladder by way of an entero-vesical fistula. Other migrations may take place from vagina to bladder, or from rectum to bladder. By far the commonest portal of entry of foreign bodies into the urethra and bladder, however, is via the urethra itself.

The objects may be introduced by the surgeon, viz. a filiform tip which has broken off; a piece of catheter may break off, or a sponge or drain may be left behind; or, perhaps they may have been placed in the body by the surgeon, and then migrated into the bladder, e.g. an orthopedic screw, nail, wire or bone peg.

The introduction of the foreign body by the patient may be:

(a) For auto-eroticism.
(b) To relieve urinary retention.
(c) To dilate a stricture.
(d) Occasionally for malingering, or to create a disability, as in the stories you hear of men introducing a caustic into the urethra to avoid military service in the Czars' Army.
(e) To arouse sympathy.
(f) In the very young, as an experiment in self discovery.
(g) Accidentally, as in mistaking the urethra for the vagina in attempting to produce an abortion.
(h) Mistaking the urethra for the vagina in taking vaginal temperatures.

Table I

ANIMAL	MINERAL	VEGETABLE
Hog's penis	Surgical instruments	Slippery elm
Wax*	Needles and pins	Thread
Bone fragments	Glass and steel rods	Rubber tubes & strips
Bone splinters	Hairpins, hatpins, bobby pins	Newspaper rolled into tight cylinders
Bone pegs	Electric light bulb	Chewing gum
Worms	Bullets and shrapnel	Stalks of plants and vegetables
Larvae	Orthopedic pins, wires, screws and nails	Cuticle pusher (wood)
Small snakes	Wire, insulated and uninsulated	Tightly rolled condoms
Wasps	Stones and shots	Contraceptive diaphragm
Tail bone of squirrel	Nail files and eyebrow tweezers	Rubber bands
Candles	Thermometers and highball muddlers	Leather shoelaces
Tallow and gravy (they hardened in the bladder)	Watch chains	Small bits of tightly rolled cloth
Fetal bones (after abdominal pregnancy)	Handles (of safety razors and toothbrushes)	Straw and grass
Thigh bone from rabbit (eroded from bowel)	Meat skewers	Pencils
Dermoids cysts with teeth and bone and hair	Fish line leaders	Penholders
Head of femur, after osteomyelitis, was found in bladder	Glass beads	Balloons
Soap	Paraffin	Bamboo
Fish skeletons (Candiru)	Crayons	Toothpicks
Silk sutures	Medicine dropper	Packs, drains and sponges
		Woven filiforms and bougies*

* Some of these things may be of more than one origin, e.g. wax may be animal or vegetable. Bougies might be a combination of animal (silk), vegetable (cotton) or mineral (plastic coating). There is also a mineral wax made of hydrocarbons called ozocerite. Plastic substances themselves may be of animal, mineral or vegetable origin.

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(i) Introduced by a paramour to obtain an erection in the dead-drunk, or spent, male.

(j) Or, because the patient is just plain crazy.

In general, one may say that the medical material was left behind or introduced by accident—surgical instruments or portions thereof, thermometers or filiforms.

Missiles, fragments or bones and cloth, have entered through the skin by direct trauma; a few objects entered the body and later migrated into the bladder. The reverse may also happen, as in the case of a 22 calibre bullet which was voided 20 minutes after entering the bladder via the buttock.

The major number of bizarre objects were introduced by the patients themselves, most often for auto-eroticism.

Mention should be made of the small fish of the Amazon Basin named Candiru, which swims up the urethra of bathers and feeds on the flesh of its victim. Preventive medicine by the bathers consists of wearing a small cocoanut shell over the genitalia. The native treatment is to drink very hot a brew of the buitach apple of the region, which concoction is said to be excreted in the urine and to dissolve the skeleton of the fish in the urethra or bladder.

My interest in the subject of foreign bodies in the urinary tract was first kindled by a patient who lost a thermometer in her bladder while taking her temperature vaginally, or so she thought, for infertility studies. This is an unnecessary risk, of course, as a rectal or oral temperature taken daily in the same way gives as much information for infertility purposes as a temperature taken vaginally.

Case Report

The patient was a 43 year old white unmarried male. His chief complaint was that he had, to quote him, "a pencil in the penis." It was stuck inside and he couldn't get it out. It had been put in eraser first, and the more he tried to extract it, the more bleeding there was. It had been present for about 18 hours, and he said he was able to void around the pencil, but it was difficult, and the urine was bloody and "the pain was beginning to get" him. Past history was of no particular significance, and included only an appendectomy in 1959. He had never been under the care of a psychiatrist, nor had be been a patient in a mental institution.

On examination, the penis was turgid, and a pencil five inches (13 cm.) long could be felt in the urethra, with its point embedded in a pocket in the distal urethra made by the point of the pencil. The point of the pencil was sharpened for writing and had perforated the urethra. The eraser was nicely rounded off. In attempting to push the pencil out in the direction of the external urethral meatus, the pointed sharp tip embedded itself further into the penis. (Fig. I).

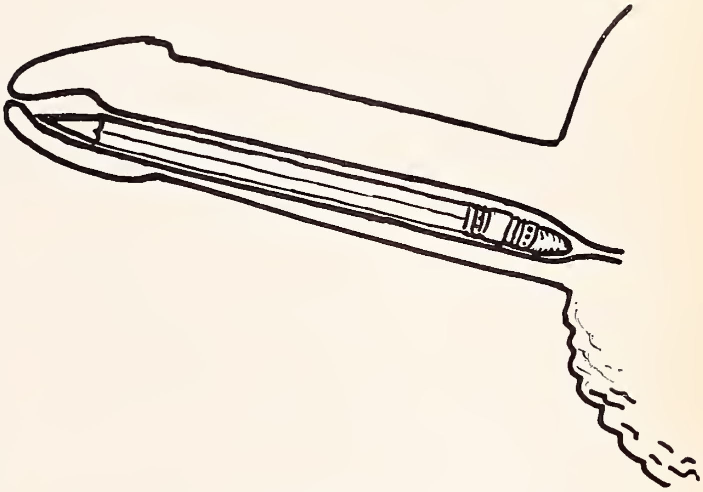

Figure I

The tip of the pencil had perforated the urethra at the fossa navicularis.

Recalling the necessity of pushing certain objects in before they can be brought out, the pencil was milked further inwards, thus bringing the perforating point back into the lumen of the urethra. It was then an easy matter to deliver it transurethrally.

Aside from 24 hours of blood tinged urine, there were apparently no ill effects from the trauma of "a pencil in the penis."

Summary

A case of a pencil with its point embedded in the region of the fossa navicularis and its eraser in the posterior urethra, is described, as well as a simple method of removal.

It is well to remember that with certain embedded objects it is sometimes better to push them in further to "dis-embed" them, before attempting removal.

I have not attempted to go into the sexual or psychiatric aspects of this case. Patient was extremely reluctant to have any discussion about his problem, and said, "Let's just forget it, huh?"

REFERENCES

Campbell, Meredith, Clinical Pediatric Urology, Philadelphia, W. B. Saunders and Co., 1951.

Campbell, Meredith, Editor, Urology, in Three Volumes, Vol. I, Philadelphia, W. B. Saunders and Co., 1954.

Geyerman, P. T., Medical Curiosities (Snake in the Bladder), Urol. and Cutan. Rev., 41: 89, 1937.

Jeck, H. S.: Removal of foreign bodies from the urethra. Am. J. Surg., 36: 197, 1937.

Schloss, Walter A. and Solomkin, Mark: Foreign body in the bladder: Removal of thermometer with Stern-McCarthy resectoscope. J. Am. Med. Assn., 143: 804, 1950.

The Economic Future Of Medicine

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FROM long standing obscurity, the economics of medicine is bursting into irrepressible prominence. Expenditures for health services have entered into the steepest and most sustained climb ever, and the foreseeable trends point unyieldingly upward. A new form of payment has emerged, which, in spite of its voluntary and evolutionary nature, is nevertheless profoundly changing the economics of medical practice. Medical economics is no longer the special preserve of critics and reformers. Hardly a physician in practice today can fail to feel its augmented importance—indeed that the future of medicine itself has somehow become tied to the future of medical economics.

That future is not easily predicted. Emerson remarked: "A veil shuts down on the facts of tomorrow." And he added the valuable insight: "for the soul will not have us read any other cipher but that of cause and effect." Although prophecy is hazardous and perhaps presumptuous, some of the future, as Emerson suggested, can be read in the ascertainable causes and effects that have brought us to where we now stand and that are likely to influence the course ahead.

Medicine is rising on the nation's agenda for fundamental reasons. The further the economy advances above subsistence, the greater is its capacity and its obligation to promote human welfare. The further the healing arts advance, the more society is obligated to assure their availability to those who need them. The further the science of medicine advances, the greater is the need for a more assured, more stable, more adequate and more elaborate system of financing.

For many centuries, medicine had rested on a simple technology of unaided perception. Its therapy was largely manual and empirical. Medical economics was correspondingly simple. It was mainly a direct transaction between physician and patient. Physicians had their hands full in relieving, comforting and curing the sick, in searching for a better art and science of healing, and in creating a profession. They did not concern themselves over much with the economics of medical care. They assumed, not unreasonably, that ways would somehow be found to pay for care. Society for the most part merely stood by. Through the courts, it would require a delinquent patient to pay his bills. Occasionally, it would act against excessive fees for care or medication. To aid those who might otherwise be unable to pay, physicians' fees were graduated according to the patients' ability to pay. This practice is already formulated in such ancient laws as the Code of Hammurabi nearly two millennia B.C. For those unable to pay even reduced fees, medical care came to be provided as a charitable service. This too was an ancient custom, strongly supported by religious precept, that came to a peak during the early middle ages when most physicians practiced what might be called "ecclesiasticized" medicine.

With major advances in medicine, this primitive constellation of medical economics no longer sufficed. The industrial revolution brought a rapid succession of discoveries and inventions that greatly increased the scope of medical care and the cost of providing it. The microscope, stethoscope and a succession of other devices, amplified the hitherto unaided perceptions; advances in electricity brought the cathode ray tube and X-ray; advances in chemistry, the clinical laboratory. At present, an even greater surge of technological advances is bringing ever more powerful methods and tools of exploring the nature of life and of treating and preventing disease.

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But the very same technological advance had other consequences. It created a different work force that had left agriculture and the handicrafts to take employment and needed new forms of social protection. Public and private insurance against the common hazards of life were as much an invention of the industrial revolution as the steam engine. A growing economy made it possible, and rising social standards made it prevalent, for people to lay aside money from everyday living to avert the indignity of charity and to obtain certain forms of protection as a matter of right. The protection was made available on presumptive rather than individually demonstrated need. Allowances which amount to prepaid food, clothing, and shelter during unemployment, illness, work injury, old age, and upon the death of the breadwinner, came to be provided through public and private insurance. Medical care was not singled out as a target, but it, too, became a contingency against which insurance was increasingly needed and eventually provided.

Health insurance, however, came late to America, for all practical purposes, the product of only two decades. Although its beginnings go back about a century, as late as 1940 fewer than one in ten Americans had any form of prepayment. Deadlocked by the fight over whether to proceed under public or private sponsorship, delayed by a national preoccupation with other pressures, it did not come until an economic crisis revealed beyond escape a change that had already occurred; that it had become impossible to operate an advanced level of health services financed primarily by payments from patients.

Understandably, hospitals embodying the greatest concentration of the new medical technology and ministering to the most severe medical needs of people, recognized first the need for prepayment and acted first. For a few additional years, prepayment did not spread to medical care until a corresponding political crisis made it clear that in one way or another action could no longer be put off.

In spite of its origins in crisis, a vigorous voluntary system has emerged. The people assigned high priority and urgency to the need for health protection. And voluntary prepayment has grown beyond the fondest expectations of even its most optimistic sponsors. Prepayment stabilized the financing of hospital and medical care, restored access to care for subscribers and supported a rising volume and standard of care. Its benefits, now on the order of $5 billion a year, are making a contribution to the health and economic security of the people beyond dispute. It has begun to demonstrate advantages of voluntarism and flexibility that could have lasting influence. In recent years there have been few proposals to enact universal health insurance, and even these have not been vigorously advanced.

A deep-going and probably irreversible change has occurred. To blame it on the plotting and machinations of social planners is to confuse slogans with reality.

Labor and medicine (and management and others) are caught up in inescapable change. We could not operate the modern hospital without prepayment. Nor would there be the same volume and level of physicians' services without the additional funds made available and the systematic payment by the well for health care. For their part, patients, except for the very wealthy, probably could not otherwise afford the volume and quality of care that is now being rendered.

The real issues that now face prepayment are at odds with the slogans. They are how to design appropriate benefits; how to underwrite and administer them; how to assure that their cost is proper and their use not out of bounds; how to develop methods of remuneration that are equitable to physicians and hospitals and not excessive for the public; how to extend and preserve coverage; and how to make prepayment a more positive force for the preservation and advancement of health.

Although labor originally advocated national health insurance, although it remains the most vocal challenge to the status quo, although it continues to be regarded as the chief adversary, and although it is now supporting a legislative program for the aged, labor has in fact provided crucial support for the voluntary system. Whatever reservations labor may have had, it did not stand apart from the voluntary system hoping for it to fail. On the contrary, the need for timely protection prevailed. Labor has invested more time and effort in working with the voluntary system than in all of its previous efforts to obtain universal health insurance.

Unions began to arrange for health insurance and for payroll deductions to facilitate its purchase. They attempted and, after some initial rebuffs, succeeded in bargaining with employers for contributions to health insurance. The payments initiated by labor and management have contributed more to the rapid growth of prepayment than any other single influence.

Collective bargaining provided a means of establishing programs, of obtaining agreement on benefits and eligibility, and of creating a contractual obligation for contributions. If there had not been a well-developed body of labor-management negotiations in America, a voluntary health insurance system would have been impossible on a large enough scale to have survived. Collective bargaining has thus become a central part of the voluntary system. Indeed, in contrast to other countries, where collective bargaining is less developed, and where unions of necessity resort more readily to governmental action, the more advanced state of collective bargaining in America is a sustaining force for the voluntary system that could give it a longer lease on life than was possible in many countries abroad.

The course of prepayment, however, is only partway run. There is no doubt that it will advance further into home and office care—perhaps not all the way, but much of the way—into drugs and nursing, into preventive services at one end of the health spectrum and rehabilitation at the other. This is going to happen irrespective of whether there is an atmosphere of harmony, or one of conflict. It will happen irrespective of whether physicians are ready to lead or forced to follow; irrespective even of whether the public knows as much or less than the physician about what is involved in planning and paying for health services. For, while the public may be less informed about health care than physicians, it has no less a stake in its ultimate availability and in its ultimate quality. Plans that have already gone further into the spectrum of care have demonstrated that the failure to provide much more comprehensive protection leaves people exposed to unnecessary privation, that small claims can grow into a large burden, and that it is feasible to provide broader care if efforts are made to overcome the disadvantage of the small claim rather than reject it out of hand.

The job of enrollment is by no means over. Serious gaps remain not only among the aged, but in rural farm areas, in various regions of the country, among families with low income, and among people unable, or limited in their ability, to work. Health insurance has not nearly been made recession-proof. The loss of protection by people who are laid off is a timely problem that could assume even greater intensity than the present concern over health insurance for the aged. Will it require a Forand Bill for the unemployed to prod the voluntary system into hasty action on a matter that a prudent system would have solved on its own initiative?

I am pleased to be able to announce that in the negotiations just concluded with General Motors and our union, we were able to make a very substantial gain in extending fully paid health protection for laid off employees for up to a year. This kind of action coud help bolster the voluntary system and close a very serious remaining gap.

Nor is it enough to point simply to the large number insured. Many forms of limited and even negligible insurance now exist, some deceptive in their offerings to the point of fraud. A Flexner Report on medical economics lies ahead. It will reveal that a large number of substandard forms of health insurance have sprung up in those years of rapid and uncritical acceptance—when almost any enrollment card that was extended to the public was quickly signed—much as the substandard medical schools of fifty years ago. Even the best plans have made few efforts to design prepayment for people of modest means, so that the least insurance offers maximum rather than minimum utility for price.

There are, moreover, signs of a slowing up of the progress in prepayment. Once the economic crisis passed, the hospitals have shown much less disposition to continue pioneering. Many of their prepayment plans seem to be concerned mainly with preserving a degree of peace and quiet that the rising cost of hospital care is not likely to grant them. Similarly, once the voluntary system reduced the threat of national health insurance, many physicians relaxed their support of their own Blue Shield Plans. Except for a threat here and there of such competing plans as Kaiser or HIP, or the newly formed CHA Plan in Detroit, the tempo of development has slowed down with the race only part-way run.

Some regard the job as largely over and foresee mainly minor supplementation ahead. To these, the form taken by supplementary benefits may appear unimportant. On the other hand, if much more must come under prepayment, the manner in which prepayment proceeds with the next steps and addresses itself to home and office and to other now largely uncovered services is of enormous importance.

The major benefit extensions in recent years have come from the comprehensive group practice plans and from the private insurance companies. The medical profession, which has at its fingertips the capability of extending prepayment where it most needs to be broadened on a sound base of medical participation, has tended to let others take the lead, to copy insurance company plans with all of their known weaknesses and to make mainly desultory accommodations to outside pressures. As a result, for lack of a superior product that could attract subscribers and elicit a willingness to pay more, many medical society plans have lapsed into chronically defensive positions, losing enrollment and surrendering that very initiative that Blue Shield originally hoped to keep in medical hands.

The road from one rate increase to the next is becoming progressively more difficult. Prepayment faces unique difficulties in imposing what amounts to a private tax. The difficulty of interpreting and justifying rate increases, in getting their acceptance by subscribers who will play an increasingly important role in financing care, and who have to be ready to support a rising standard and volume of care is compounded by a remaining lack of balance in the control of prepayment. Consumers have legitimate grounds for skepticism over whether plans originated, sponsored and still largely dominated by purveyors of service are sufficiently responsive to the interests of consumers; whether such plans tend to explain away increased cost rather than scrupulously try to avoid those elements of cost that may not be justified.

The existence of prepayment does facilitate, and to some extent stimulate—and the predication of benefits on hospital admission may further provoke—an increased use of the hospital. In trying to defend prepayment against what are taken to be irresponsible attacks, most plans try too much to palliate rather than to solve these problems.

Physicians above all know that a significant number of patients are being hospitalized who formally would have been treated outside the hospitals without jeopardy or detriment. Physicians, therefore, should be the least susceptible to bland assurances that faulty utilization is of no consequence. The medical profession, to its credit, has accepted the idea of iatrogenic harm. But prepayment is not mature enough to have recognized the danger of insurogenic harm, to the extent that powerful economic forces which do influence practice are being exerted with insufficient understanding or recognition, and to the extent that poorly designed forms of prepayment are permitted to continue.

One of the most poorly designed of these is the indemnity benefit. It would be a travesty on physicians, of which I have no desire to be guilty, to assert that all will necessarily raise their fees where indemnity exists. But without a real understanding about fees, there is enough ambiguity and abuse under indemnity plans to leave the insurance fundamentally defective. Indemnity dealings are harming the medical profession, undermining public confidence in the conduct of prepayment, and providing no end of ammunition to those disposed to question the justification of the cost of prepayment.

The day of the indemnity plan is drawing to a close. This could have been foreseen in the popularity of major medical insurance under which the very insurers who previously dealt only in indemnity began to pay three-fourths or four-fifths of reasonable and customary fees. In the negotiations just concluded between General Motors and the UAW, service benefits were again endorsed. It was agreed to continue to work with Blue Shield and to encourage the plans and their national association to develop more uniform protection. However, in two areas where service benefits were unavailable and where there was insufficient promise that they would be provided, it was agreed to experiment with an insured plan paying reasonable and customary fees. This should not be taken as a rejection of fee schedules or an endorsement of reasonable and customary fee arrangements. It is simply and solely a rejection of indemnity benefits.

Fortunately, there is a sound basis for service benefits. Consumers stand ready to pay prevailing fees charged by physicians under terms generally set by the profession itself. They should be able to find out from the profession, within reasonable limits, what a given range of services will cost. Any system should be flexible and allow for individual determinations where complications arise. It need not bind physicians for all time. Although it should obtain the participation of most physicians, those who think that their services are worth more than can reasonably be expected from a general insurance system could presumably abstain.

The setting of fees under prepayment needs much more elaboration. Relative values studies and professional service indexes are only beginnings. Serious inequities exist in the over-emphasis of surgery to the neglect of general practice and of internal medicine and many other specialties. If such fee arrangements could be made and reasonably self-policed by physicians, much of the present consumer dissatisfaction would be eliminated, and needed extensions in benefits could be undertaken. Such refinements would greatly strengthen the offering of organized medicine in prepayment and would win great acceptance from the vast numbers in the public who respect their physician and who want a prepayment system that enables them to stay with him.

If a sound system of reimbursement under service plans can be devised, the potential for medically sponsored—for Blue Shield—prepayment is enormously enhanced. If such arrangements, which still seem Utopian in many places, are not possible, there is no valid basis on which to proceed.

The major crisis over the cost of voluntary prepayment is likely to occur not over the absolute level of payment—I doubt that there is a predetermined ceiling that limits the amount that people will pay to so much and not a penny more—but on how effectively the costs are distributed. The outcome will depend on whether out of the many thousands of separate decisions now being made by labor, management and others to contribute and to buy; and out of the work of hundreds of competing carriers, it will be possible to accommodate those who have greater health needs without charging excessive rates or forcing them to accept reduced protection; whether the people with low income and those with interrupted income, such as the unemployed will remain protected. Regrettably, for short run competitive interests, risk sharing is being weakened rather than strengthened.

Before the abrupt changes in recent decades medical economics had remained essentially unchanged for several centuries. As is true of many long standing systems of static thought, the old precepts of medical economics were commonly regarded as endowed with eternal verity—tried and true. Many concepts of medical economics corresponded to stages of medical thought long ago discarded. These should be revealing signs to anyone acquainted with the history of medicine. There was rigidity of thought, denunciation of innovation, and a reliance on dogma and doctrine rather than observation and experimentation. Alternative methods of organizing and paying for medical care were regarded as both harmful and heretical.

We have gone through an unedifying chapter of medical history when efforts were made to destroy closed panel group practice prepayment plans. Ever since the Larson Commission of the AMA released its report, there has been a heartening change of attitude.

For their part, the closed panel plans are now accepting dual choice, under which each family is given an option of enrolling either in a closed panel or in one in which all qualified practitioners may participate.

It is desirable and much in the public interest that a variety of voluntary plans exist and seek their natural level—without coercion and without intimidation—depending on how well they attract physicians and subscribers. All parties are best served when there is competition among good contenders.

Although medicine itself is so largely the product of experimentation, there has been a paucity of real experimentation in medical economics. Experimentation in fact has been feared. Yet it is exactly what is needed. We do not have final answers. Before committing large sums—or entering into arrangements for long periods or on a large scale—small scale experiments could be tried. A whole range of experiments from the modest to the ambitious looking for and evolving the controls that are needed—would make it possible for the medical profession to offer needed new benefits that reenforce good medical practice and provide good protection.

Once again we are in the midst of a particular bitter controversy, this time over health insurance for the aged. A full exploration would be far too time consuming. This is regrettable because—before springing into debate or denunciation—it would be sobering to see what labor has done to try to get voluntary insurance for the aged when this was not even accepted as a responsibility of the voluntary system.

Before legislation to cover the aged was seriously advanced, very little was done to preserve their coverage and practically nothing to extend it.

The majority of the aged still have no health insurance and much of what is now available is substandard. Predictions that most of those who want and need insurance will soon be reached, not only take gross liberties in defining who needs and wants health insurance but assume an optimism that is largely unwarranted by the facts.

Just as the position of those who wanted an all-governmental solution has become untenable, the same fate is now befalling the position of no government in health insurance. The prevalent social trend has been pragmatic about means. When governmental programs were unobtainable, people turned to private means; when private programs were unavailing, they turned to government. When benefits became inadequate, they turned to supplementation involving both government and private programs. However, while willing to be pragmatic about means, people have insisted that needs be met.

It is quite futile to deny the needs of the aged. In a sense, the need for additional insurance legislation has received bipartisan endorsement. Although there are major policy differences between the Democratic and Republican proposals, there also are similarities and probably less underlying disagreement than appears on the surface.

In a futile step-by-step effort to avoid all governmental participation, there lies a real danger of winding up with the worst kind of governmental program.

Although the Kerr-Mills Bill was regarded as a mild alternative to the Forand Bill and called a real victory for the medical profession, it will hardly give the profession immunity from the political pressures it fears. Politics is by no means confined to Washington. It is exercised just as avidly in state and local governments. Local political control of a segment of medical care, in which welfare agencies not only limit price but set maximums governing clinical practice, such as the three to twenty-one days of hospital care for acute life endangering conditions or no more than two home visits per month and the like, should give little comfort to the medical profession. That any one fearing the proclivity of politicians to out-promise each other would reject a system under which benefits must ultimately be supported by the capacity of a payroll tax and fail to see how much more susceptible to political pressure, a relief program with its hand in the government till could become, is to reveal very little political acuity. In avoiding social security, we may well wind up with a Townsend or "ham and eggs" plan of health care for the aged.

In insisting on a program based on individual need, medicine is fighting an historical force to get away from charity and the means test that probably will prevail. Even if every physician in America strongly believed that social insurance is wrong and European, (sometimes used synonymously), the vast majority of the people would much prefer to let the company president draw a social security benefit, even though he doesn't need it, than to let many of the aged be exposed to the humiliation and paternalism of the means test. Presumptive need is replacing the doctrine of individual verified need.

Out of their concern about a form of legislation which they feel threatens them, physicians are again turning to a political blitzkrieg. In the campaign against socialized medicine, on which $19 million was spent in the year 1950, whatever the urgency, whatever the justification, the physician stepped off his pedestal to wage a public relations campaign not distinguished for its high conduct. Medical affairs acquired a discourse of exaggeration and denunciation which still remains and is now rebounding in some of the inaccurate and intemperate denunciations of doctors. The present public relations campaign is off to the same start.

That physicians might fear the social security system is understandable. That they might themselves not want to be covered, even though this puts the physician in an extreme minority, is, nevertheless, understandable. That they might wish to oppose its extension in fields involving medicine is also a matter of policy in which physicians are entitled to their opinion and to press for their preference. But it should be possible to conduct such controversies without adopting a scorched earth policy in which social security must be portrayed as an unmitigated evil, insolvent, inequitable, iniquitous —accusations that are unfounded, inaccurate, intemperate and unjust. Socal security is not insolvent. That it has run into the red in having benefits exceed income during three of twenty-four years hardly disqualifies its solvency. Many Blue Cross and Blue Shield plans would gladly settle for a similar record. The trust fund now stands at more than $20 billion and after the recent amendments, is expected to increase to $46 billion in 1970, to $81 billion in 1975 and $140 billion in the year 2000.

The argument that social insurance is not insurance springs out of a tautological definition which defines insurance as private insurance. It is appropriate and even necessary for a public insurance system to operate in some ways differently from private insurance, just as within private insurance, group insurance is operated differently from individual insurance, and fire and casualty quite differently from ordinary life. And there are many other illustrations that are just as deviant within private insurance as the differences between public and private insurance. If private insurance uses a contract, public insurance uses a statute. Which is more fool-proof? It depends. Private insurance has numerous contracts with escape clauses permitting the company to get out of its obligations through such devices as cancellations or failure to renew. If the government could conceivably modify a statute, so can an insurance company or prepayment plan vary its contract. The social security system has not cut back its benefits nor has there ever been an imminent threat of such a cutback.

Governmental insurance has no greater need than Blue Cross or Blue Shield to follow exactly the provisions of a private life insurance company. On the contrary, if some one were seriously to entertain remodeling the social security system into something closely resembling the practice of private insurance, the inappropriateness of such a proposal would very quickly be rejected on sober second thought. Is it desirable, for example, to have a fully funded reserve of many billions of dollars enter the bond market and start dealing in mortgages and otherwise invested as a portfolio of a major insurance company? It is one thing for physicians to fear the social security institution as a potential threat. It is quite another to let that fear result in inaccurate and intemperate denunciations of a system that is greatly needed and respected by the population.

It is natural that the initiative for social change in medical matters would originate with society, and physicians may have some ground for anxiety. Physicians come to these problems with a real concern for medical values. It is natural for them to fear interference with practice and with the economics of medicine. But society, too, has a stake in medicine, ultimately a decisive one. It is not merely responding to political manipulation. Many of the major innovations have had to be imposed on a reluctant profession. Physicians have too often opposed even voluntary prepayment, closed panel plans, hospital practice and such social legislation as disability insurance under social security, on grounds that in the eyes of most people have proved to be insufficient. If hospitals had not established prepayment plans over the original opposition of organized medicine, all of the warnings about socialized medicine would probably have been to no avail. For, above all, it was a creation of an alternative that averted governmental health insurance. If closed panel plans had awaited medical society approval, we would not have many programs now conceded to be a valid and important part of the voluntary system. If hospitals had accepted some of the medical attitudes which would have limited their scope of practice, many outstanding institutions would not exist today. Nor would we be any better as a nation if the permanently and totally disabled had been left to public assistance.

It is argued that the insertion of government in any form in health care will inevitably take over the whole field, that you can't be a little pregnant. This analogy, however, is well refuted by the co-existence of public and private insurance, in old age pensions, disability pensions and programs for occupational injuries, unemployment insurance and numerous other fields. One has not engulfed the other and both together have performed better than either alone. Perhaps a closer analogy is that in an advancing technology, very few of our metals are used unalloyed; rather, the judicious combination of materials produces results that are generally better than any of the ingredients alone. And to get away from analogies altogether, because they often are tricky, the combined use of public and private insurance, which has been carried to a very high point in old age pensions in our country, can produce results superior to those attainable from either alone.

We in America have ventured into a unique voluntary system. That it is voluntary is not unique. In most countries, voluntary systems have existed and much more voluntarism has survived than may be recognized. What is unique is the late stage in our economy, in medical care and in social development at which this system has occurred. If the profession and the public work diligently to perfect it, that voluntary system can have a long lease on life. As it grows, there will probably be a decline of the ancient graduated fee schedule which will become increasingly less justified or necessary as a very broad section of the population becomes better able to pay for medical care at a prevailing level. Although charitable medicine is likely to remain for a while, there will also be a decline in this method of financing care as more people become able to pay. These trends are obvious and although there have been recent arguments extolling some of the virtues of a charitable system of medicine or reliance on personal resources, these are largely defensive utterances rather than a realistic appraisal of the probabilities. One of the main issues will be how much health care will be financed through insurance, how much through out-of-pocket payments, how insurance will be conducted, how much through private, how much through governmental auspices and how much insurance principles will be used or some other alternative form of social financing or providing health care.

The danger is that in a succession of ill-conducted fights, we may impair the prospects for the best opportunity that lies ahead for American medicine and the American public. That is the possibility that we in this country can evolve our own health insurance system, a unique one based on our own stage of development, our own resources, our own needs, our own culture, our own condition and our own temperament. In our own system there can be room for those elements of voluntarism that we apparently value. There is no reason to believe that the single answer is merely to assign the problem to government. Neither are there grounds for assuming an entirely non-governmental solution.

Those who cherish a voluntary system have one main task—to build the strongest possible, not the least vigorous, voluntary one. Some may feel that the larger the voluntary system, the greater the likelihood that government will take it over. But consider the alternative. Which would government be more likely to replace: a vigorous or a weak system? To face the future with the strongest possible voluntary system is to give those aspects of voluntarism which we cherish the best chance to survive. In this, Blue Shield can play a crucial role.

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EDITORIALS

A University Without Walls

> *The dogmas of the quiet past are inadequate to the stormy present . . . as our case is so new, so we must think anew and act anew. We must disenthrone ourselves and then we shall save our country.*
>
> —Abraham Lincoln

Most physicians work hard in attempting to keep themselves abreast of new developments through reading a multitude of scientific journals, attendance at hospital staff meetings and scientific meetings of professional organizations. However, the task of keeping informed is becoming increasingly difficult because of the rising tide of medical publications, and the changing patterns of medical care resulting in part from diagnostic and therapeutic advances. As pointed out in the report of the President's conference on "Heart Disease and Cancer" . . . the best medical education and training can become obsolete in five years unless the physician makes a very determined effort to continue his education . . ." For this reason it is now recognized that a physician in order to maintain his full professional competence must be a lifetime student. For this, there must be organized, comprehensive, sequential courses in all areas of medicine that are available to the physician-learner, At present, no one knows what types of courses physicians want or need. There are no generally recognized standards of excellence against which courses may be measured, nor is there any method of accreditation in the field of continuing education.

It is clear that continuing education is one of the most important problems facing medical education today. An immediate and profound effect upon the level of medical care will result from any plan which will advance the knowledge and competence of physicians who are now engaged in practice. The quality of the medical care which the physician gives to his patient must depend largely upon his ability to make available to his patients the benefit of medical knowledge. We must not allow a serious gap to develop between available knowledge and its application in medical practice. There of course, should be some gap between advance in medical knowledge in the research laboratory and its application in the practice of medicine. Applying a method of diagnosis and treatment in a patient requires that the method should be tried and true after its initial discovery. But we must be concerned with the gap between the application of medical knowledge in the modern medical center and that in other areas of medical practice, a gap that tends to widen each year for a variety of reasons.

At present, opportunities for continuing medical education are poorly distributed. There are many inadequacies in most of the existing continuing education programs. What is perhaps most fatal to continuing medical education is that patterns of educational organization and dissemination of knowledge are not efficient in terms of the needs of the physician-student and in terms of the utilization of the time and energy of the physician-educator. These problems are nationwide and only a national plan which will utilize all existing resources in a coordinated manner will probably provide the best solution. Practical methods do exist to meet the individual physician's requirements for continuing his professional education throughout his career, in the field of medical education, the behavioral sciences, communication technologies. These are at hand but have not been integrated for a concerted attack on the problem of continuing medical education.

A satisfactory program in continuing medical education usually involves much more than simply providing physicians with practical information. Bulletins with medical facts have over simplified the problem, so also have data processing centers, electronic computers which, while valuable for the storage, retrieval, and distribution of scientific information, do not answer the need for comprehensive educational programs for individual physicians. Continuing medical education must be based upon the principle of the teaching-learning process, not solely upon supplying medical information. Learning is essentially an individual personal achievement. It should involve ideal motivation towards personal standards of excellence. It should encourage individual critical analysis and synthesis of data. To a healthy citizen and a sick patient excellence means elevated standards of medical care. To the physician it means personal satisfaction through maintenance of high standards of professional competence. It will mean an enriched professional life.

Three criteria must be satisfied if we are to achieve continuing medical education on a wide scale. There must be freedom of choice which will permit each physician to decide for himself when, where and how he will continue his education. There must be continuity whereby educational programs will be sequentially arranged and continuously available. Finally the program must be accessible to enable every physician to have equal access to the best teachers and the major centers of instruction. To achieve this goal it is proposed that we organize a University Without Walls.[1] Such an organization would have the function and independence of a university but need not have the physical plant, resident faculty or resident student body which a university ordinarily has. The function would be those of teaching, research development, and coordination, in continuing medical education. The goals would be improved medical care, improved health maintenance and above all enrichment of medical careers. These can only be achieved by increasing and maintaining the life long competence of physicians.

A curriculum would be designed and produced by a "national faculty" made up of expert and scholarly teachers and made available on a regional and locally selective basis. A "core curriculum" for each field of medicine would be a comprehensive coverage of what the physician requires as a basis to meet his patients needs. Each "core curriculum" would be planned in sequential fashion designed to cover an organized body of knowledge. A national coordinating body would develop teaching material and methods of delivery to be used in curriculum presentations by a "faculty" invited to participate from all parts of the country. The teaching material to be made available in sufficient numbers for distribution to regional centers throughout the country would include books and syllabi, motion picture films, videotapes, programmed courses of instructions for use in teaching machines, pathological slides, electrocardiograms, electroencephalograms, X-ray plates, graphic representation of biostatistical data and all other teaching modalities. Local needs would then determine distribution of all or any part of the national presentation.

Each physician might participate in any part of the program which would be organized sequentially and continuous so that if he did not participate in the first rotation he could join in the second or third or elect to take a part and pick up the rest later. There would be opportunity for self-evaluaton in the form of self-appraisal examinations which would be developed along with each "core curriculum" with the assistance of specialists in the field of education design. The physician-learner could elect to take self-examinations on any given segment of the program to determine for himself whether his progress has been satisfactory or what he should repeat.

As far as organizational structure of the "University Without Walls" is concerned, it is important that it should be acceptable to the medical profession, both to the practicing physician who will be the student and those who will comprise the profession, both to the practicing physician who will be the student and those who will comprise the "National Faculty." It should have independence and academic freedom so that it can carry out its functions as an educational institution in the planning and implementation of its educational program. It should have high prestige to be acceptable to the public and attract financial support from foundations, individuals, business and government so as to secure the necessary cooperation, to permit use of national communication facilities and if it is to exercise appropriate leadership in the field it should have legal status which will permit it to enter into contracts, solicit contributions from granting agencies and perhaps collect fees from students.[1]

An organization of this kind and national participation by all physicians preferably through their county organizations should go a long way to restore the image of the medical profession in our society to a high level.

L.H.N.

REFERENCE

1. Dryer, B. V.: Lifetime learning for physicians, principles, practices, proposals. J.A.M.A., 180: 676, 1962.

The Role Of The Thymus In Experimental Leukemia

In cancer, the disease begins in some primary site and then spreads through blood or lymph to other parts of the body. Where does leukemia begin? An answer to this question was impossible until a method became available to produce leukemia experimentally. In the last ten years L. Gross succeeded in producing leukemia in mice at will. He observed that in a large mixed population of mice the incidence of leukemia is in general low. But he also observed families of mice having a higher incidence of leukemia than the general population. By inbreeding and selective mating of relatives of leukemia animals in each successive generation, the incidence of spontaneous leukemia became very high. The first thought was that some obscure genetic factor was involved. About ten years ago, however, Gross showed that when filtrates of organs of leukemic mice were inoculated into newborn mice of strains known to be free from spontaneous leukemia then a high incidence of leukemia resulted. This changed the concept of the genetic origin and led to the view that leukemia in mice is caused by a filterable agent—a virus. But it did more, it gave rise to a reliable method of inducing the disease and studying its natural history.

Several significant observations gradually evolved. One was that the disease could be produced in practically 100 per cent of animals within three months after inoculation if the potency of the virus were increased by being passed serially through succesive generations, but significantly the inoculations had to be done to newborn animals. The virus is also pathogenic when injected into young adult mice but in much smaller incidence. The same virus was found also capable of inducing lymphatic leukemia in newborn rats after a latency of three to five months.[4] Thus a leukemic mouse virus was found able to induce the same disease in two different species. Apparently, the newborn is most susceptible to leukemia virus and as time goes on the animal becomes less and less susceptible.

In what organ does the disease begin? Since leukemia is a disease of lymphocytes, one could suppose that it either begins in all lymphoid tissue more or less simultaneously or else it begins in some selected site of the lymphoid system after which it spreads to all parts. In favor of the latter hypothesis, was the observation that in some animals the peripheral blood was aleukemic in the early phases. Another suggestion favoring a primary site for the origin of lymphatic leukemia was the observation that in the early phases some animals had large lymphosarcomas of the thymus and the bone marrow had not yet been infiltrated. The proposition, therefore, became plausible that the disease actually begins in the thymus and that bone marrow involvement represents not a primary but a secondary site of the disease. If this were so then the thymus is necessary for the development of lymphatic leukemia and thymectomy should protect the animals against the disease. This experiment Gross carried out and found that many mice inoculated with the leukemic virus and having their thymus gland removed surgically, remained in good health even though they had received the virus. The conclusion seemed inescapable that the primary site of lymphatic leukemia is the thymus and that without it animals, though containing the virus in their tissues, remain free of the disease.

However, the removal of the thymus did not entirely protect all animals against leukemia. Although most mice lived out their life span, a few mice developed myeloid leukemia later in life. In other words, thymectomy protected animals against lymphatic leukemia when they were injected with the leukemogenic virus but, the virus was still able to produce myeloid leukemia in a few animals—later in life. The proof of the identity of the leukemogenic virus in both lymphatic and myeloid leukemia came when filtrates prepared from myeloid leukemic mouse tissues, when inoculated into newborn mice with the thymus gland intact, then caused lymphatic leukemia.

Certain observations of Gross may have theoretic importance to the whole problem of viruses and cancer. When normal healthy mice of families usually free from leukemia are irradiated, many of them will develop leukemia. What is more astonishing is that filtrates of the organs of such animals will produce leukemia when inoculated into newborn mice. Clearly X-ray irradiation activated a previously existent but latent virus and once activated it could be recovered and passed to other animals by inoculation.[6] Presumably the leukemia viruses exist in many normal mice without causing the disease and are transmitted from one generation to another. It is certainly possible that not only leukemic viruses, but other tumor inducing viruses may be carried by many normal and perfectly healthy hosts. While the viruses are latent they cause no apparent harm to their hosts but are "perfect parasites." But such latent oncognic viruses carry a formidable pathogenic potential and when triggered into action they can change from harmless to pathogenic agents leading to cancer.

The nature of human leukemia is still obscure and no direct convincing evidence is yet available to prove experimentally that leukemia in humans is of vital origin. And yet, the various forms of leukemia in mice and men are so similar in their clinical course and morphology that it would be wrong to assume that because the virus of human leukemia has not yet been uncovered that therefore the human disease is fundamentally different from that observed in mice. In fact, we should think seriously about activators of the leukemic virus in mice such as X-rays and other forms of atomic radiation derived from atomic blasts since, they may very well also prove to be activators in human leukemia as well.

L.H.N.

REFERENCES

1. Gross, Ludwik: The etiology of leukemia. A.M.A. Arch. Int. Med., 109: 375, 1962.

2. Gross, L.: Pathogenic properties and "vertical" transmission of the mouse leukemia agent. Proc. Soc. Exp. Biol. & Med., 78: 342, 1951.

3. Ellerman, V. and Bang, O.: Experimentelle Leukamie bei hühnern. Zbl. Bakt., 46: 595, 1908.

4. Gross, L.: Induction of leukemia in rats with mouse leukemia (passage A) virus. Proc. Soc. Exp. Biol. & Med., 106: 890, 1961.

5. Gross, L.: "Vertical" transmission of passage A leukemic virus from moculated COH mice to their untreated offspring. Proc. Soc. Exp. Biol. & Med., 107: 90, 1961.

6. Gross, L.: Serial cell-free passage of a radiation activated mouse leukemia agent. Proc. Soc. Exp. Biol. & Med., 100, 12, 1958.

7. Gross, L.: Oncogenic viruses. Pergamon Press, New York, 1961.

Auscultation Of Arteries

Just because complicated apparatus is often an essential adjunct to diagnosis and treatment and the cost of medical care is necessarily increasing, it is imperative to derive all possible help from such an inexpensive and expedient tool as the stethoscope, especially since it is always available and it takes but a few moments to obtain the information it can give Auscultation is but a small part of the total evaluation of the heart, or lungs or arteries, nevertheless, it is a very important one. Often it is the first or easiest means of suggesting a diagnosis that has to be confirmed by other methods. The original suspicion derived by the stethoscope often lends to performance of other tests and without it a correct diagnosis may be entirely overlooked.

How can physicians or even cardiologists strive to apply all the information that can be obtained by simple auscultation? First of all is the need to understand some of the simple principles of acoustics. In order that a sound may pass the threshold of audibility it must have certain intensity, frequency and duration. When the bell portion of the stethoscope is applied with light pressure this accentuates low frequencies such as a diastolic rumble and filters out high frequency. The diaphragm on the other hand with firm pressure potentiates the high frequencies. Blowing types of systolic murmurs are heard best with the diaphragm and also high pitched diastolic murmurs of aortic insufficiency and Graham Steell murmur of pulmonary insufficiency. One can, of course, use the bell to filter out low frequencies pressing it firmly against the skin in which case the taut skin becomes a diaphragm and filters out low frequencies and accentuates high ones. It is therefore possible with the bell to hear both low and high frequencies depending upon the pressure with which it is applied to the skin.

Never before has clinical auscultation of arteries been of more importance than today. Because of the great advance of vascular surgery it is possible to remove narrowed arterial segments and restore normal blood flow to the impaired regions.

Narrowed arterial segments occur frequently in many areas of the body. As vascular surgery progressed to the point of successful repair of such obstructions so has the need for recognition of such atherosclerotic lesions grown. In the neck frequent stenosis occurs in one or both carotid or vertebral arteries, and surgical removal of atherosclerotic plaques have been reported in an impressive number of cases with successful relief of cerebral ischemic symptoms. If the stethoscope bell is placed over the bifurcation of the carotid artery and also over the origin of the vertebral artery as it emerges above the clavicle in the midclavicular region, a rough systolic murmur, not originating in the heart can be heard in fifty-seven per cent of cases of carotid obstruction, forty per cent of cases of vertebral obstruction and in another forty per cent the murmur was evidently transmitted from plaques in the subclavian artery.

In hypertension, renal artery stenosis is not unusual and was found in thirty to fifty per cent of all cases studied. In half of these a systolic murmur caused by the obstruction could be heard with a large diaphragm stethoscope placed in the midepigastrium above the umbilicus. In peripheral vascular disease a segmental obstruction in the internal iliac will produce a loud rough systolic murmur which can be heard directly over the vessel. The physician should listen over the femoral artery in the groin with a diaphragm stethoscope since this accentuates the high frequency vibration which are heard as systolic murmurs. A systolic murmur bruit indicates a narrowing in the arterial tree at or above this level.

In coarctation of the aorta, the obstruction anatomically is located midway between the front and the back, so that while a systolic murmur of high pitch heard in the front of the chest may have several causes, the same systolic murmur heard clearly in the interscapular area when it is only slightly heard anteriorly should bring to mind the possibility of coarctation of the aorta. Even when the coarctation is complete the murmurs can be produced locally, caused by the enlarged, tortuous compensatory arteries that are frequently present. The same mechanism (engorged collaterals) accounts for the systolic murmur over the supraclavicular fossa which are often louder than what is heard at the base. When the coarctation of the aorta involves the abdominal rather than the thoracic aorta, a systolic murmur can be heard over the abdomen anteriorly and posteriorly. In this case however, the intercostal collaterals will not be present. Abdominal aortic coarctation may be due to trauma which injures and causes thrombosis of the aorta, a rare condition, but when once recognized can be cured by surgery.

Progress in prevention and treatment of disease depends upon both new discoveries and better utilization of present knowledge. As for the first, laboratory and clinical research is the source of new drugs and methods of treatment. But from what has been said above much can still be gained from the second factor, for certainly all knowledge at present available is not always being applied. Certainly this is true for physicians and even specialists who could better utilize information obtained from simple auscultation. Before one can recognize a sound or a murmur he must be introduced to it, he has to become familiar with it, he has so to speak to "tune in" for a murmur. The difference in auscultatory ability is rarely due to ability to hear sounds and murmurs, but rather a difference in ability to "tune in" and interpret what is heard. The doctor using the stethoscope must "tune in" on arterial obstructions in the neck, chest, abdomen and legs. In a few moments he will know whether narrowing of vessels are producing symptoms in the head, chest, kidneys, abdominal aorta and legs. The stethoscope has been part of the doctor's kit since its discovery by Laennec in 1816. We can still improve upon our use of it.

L.H.N.

Renal Artery Stenosis And Hypertension

Since the classical experiments of Dr. Goldblatt, in which he produced hypertension by narrowing the renal artery with a silver clip, the kidney has been at the center of the problem of hypertension. If an atherosclerotic plaque happens to involve a renal artery, the Goldblatt experiment is perfectly reproduced in nature, and the removal of the obstruction in principle should lead to a disappearance of hypertension. How often does this occur in hypertensive patients and what can be expected from surgery once a segmented obstruction of a renal artery has been recognized and successfully removed? This is the question Poutasse[1] undertakes to answer. He has studied 617 hypertensive patients of which 173 were found to suffer from occlusive disease of one or both renal arteries. The important diagnostic tests that he used in discovering those hypertensive patients who had renal artery occlusive disease were intravenous urography, renal angiography and translumbar aortography.

There are also clues from the history and physical examination. The real sign that should direct attention to the renal circulation is hypertension but not any set pattern of hypertension except malignant hypertension. Some patients, however, had a relatively benign labile hypertension and suffered from renal artery stenosis, as did those with severe rapidly progressive hypertension. Neither age nor sex assisted in directing attention to the renal artery. Aside from hypertension especially of the diastolic type, the presence of a murmur heard best in the epigastrium, over the renal arteries occurred in 50 per cent of the patients. It was usually faint as contrasted with the loud and continuous murmur heard in arterio-venous fistula of the kidney.

The intravenous urogram was found to be 70 to 80 per cent accurate for predicting the presence of renal artery lesions as a cause of hypertension. Poutasse calls attention to three obvious signs; a non-functioning kidney when the retrograde pyelogram is normal; a delayed appearance of radiopaque medium in one kidney as compared to the other; and finally, a difference in the length of one kidney of 1 cm. or more and a corresponding decrease in the thickness of the renal cortex. This would indicate atrophy of the smaller kidney possibly due to a deficient arterial supply. There are also three less obvious signs. One is paradoxical hyperconcentration of the dye in a morphologically normal kidney, a result of reduced blood flow through the kidney causing less but more concentrated urine. Formerly the kidney with the richer concentration was erroneously thought to be the normal one. There are also subtle differences in the size of the calyces pelvis and ureter in the affected kidney as compared to the normal one. The normal kidney carries more urine and has larger calyces, pelvis and ureters than the compact one. There is little doubt we may expect further refinements in the technique of urography with emphasis on rapid injection of the contrast medium and earlier film exposures that will help further to bring out the details of renal function, and especially the radioactive renogram as developed by Winter[2] who found it diagnostic of renal artery disease in over 70 per cent patients tested. Renal function tests, especially the split renal function were found to be relatively unreliable in detecting differences in renal function and could not in any event relate whatever differences in renal function that might be found to the involved renal arteries.

Renal angiography by means of aortography is the final step in a definitive diagnosis of renal artery occlusive disease of one or both arteries. Obviously if the lesion is generalized and involving both arteries as occurred in one-quarter of Poutasse's patients, such cases are beyond surgical intervention. But the majority of cases were found to have isolated focal constrictions or occlusions. Thus out of 173 patients found to have renal occlusive disease, 47 had to be treated medically but 126 were operated upon in an attempt to relieve the anatomical obstruction. Poutasse found that the direct mortality of the operation is not inconsiderable since 12 died postoperatively. Only 76 patients were able to be studied one year after surgery and only 44 were found to have a normal blood pressure. On the other hand Perloff et al[4] found occlusive renal disease in 50 per cent of their patients and 66 per cent experienced a fall in blood pressure after the operation.

An explanation of the poor showing of return of blood pressure to normal in the operated patients might help further to isolate the operable from the inoperable patients. One reason might be found in the absence of a segmental lesion that can properly be removed. Such cases have been well documented in McCormack's study of the pathology of the renal arteries.[3] But another reason might be the length of time the hypertension has been in existence before the stenosis of the renal artery was recognized. In experimental animals rendered hypertensive by a variety of methods, the hypertension is reversible only in the first two to three months. Once hypertension becomes irreversible, the kidney arterial system has already been damaged by the hypertensive process itself. This would indicate that surgical relief of renal artery stenosis, could lead to a normal blood pressure provided that the hypertension itself has not irreparably damaged the renal arterial circulation. With improved methods of intravenous urography the patients with irreversible damage in the intrarenal circulation probably will be recognized and then renal artery stenosis with hypertension will become a predictably curable disease.

L.H.N.

REFERENCES

1. Poutasse, E. F.: Diagnosis and treatment of occlusive renal artery disease and hypertension. J.A.M.A., 178: 1078, Dec. 16, 1961.

2. Winter, E. C.: Diagnosis of "renal" hypertension and prediction of surgical outcome. J.A.M.A., 178: 1108, Dec. 16, 1961.

3. McCormack, L. J.: Vascular changes in hypertension. Med. Clin. N. Amer., 45: 247, March 1961.

4. Perloff, D., Sokolow, M., Wylie, E. H., Smith D. R., and Palubinskas, A. J.: Hypertension secondary to renal artery occlusive disease. Circulation, 24: 1286, Dec. 1961.

The Vertebral-Axillary Blood Diversion Syndrome

Whenever an artery is narrowed either experimentally or by an atherosclerotic plaque, the pressure beyond the obstruction is lower than it is proximal to it, and the degree of pressure drop is dependent upon the extent of the narrowing. If beyond the obstruction the vessel is in communication with a normal artery, then blood will flow from the higher pressure area into the lower. This blood diversion principle based on differences of pressure was recognized many years ago by Carl Wiggers as being responsible for collateral circulation developing in the heart in response to atherosclerosis of the coronary arteries. In this situation an area deprived of blood supply is kept alive at the expense of another region with normal circulation.

The blood diversion principle operates in the brain also although it has taken a long time to recognize it. Transient symptoms of cerebral ischemia such as recurrent brief paresis, numbness, dysphagia, vertigo, diplopia have been known for a long time, and must obviously be due to alternately reduction and restoration of blood supply. Can it be due possibly to temporary blood diversion? And if so, why haven't studies been made heretofore to answer this question? The reason is not difficult to answer in retrospect. First of all investigators have not thought of this possibility. Once having thought of it a satisfactory method for measuring blood flow which did not disturb the patient was needed to obtain quantitative measurement that could demonstrate blood diversion. Recently an ingenuous method was published by which blood flow could be accurately measured without disturbing the normal flow and without cannulation of the vessel. The instrument consists of an electromagnetic flow-meter which is applied to the vessel wall.[1] Once the thought was there, and an appropriate method was at hand for quantitative measurements of blood flow, the stage was set for studying patients who suffered temporary failure of the local circulation of the brain.

Reivich et al[2] have just reported studies on two such patients and four dogs with well documented evidence that when atherosclerotic stenosis or occlusion occurs in the subclavian artery proximal to the origin of the vertebral, there occurs a reduction of pressure distal to the obstruction, with the result that the blood flows down the vertebral from the circle of Willis, into the axillary artery draining blood away from the basilar system. The term "Subclavian steal"[3] does not fully describe the true nature of the physiologic disturbance which is really a form of blood diversion from the brain into the arm. Clearly if the compensatory circulation in the brain is insufficient either because of already reduced collateral channels and, or, increased demands in the axillary territory when the arm is exercising, then ischemia of the brain stem must follow and a neurologic deficit will appear. If the ischemia is prolonged, permanent damage to the nervous system will result especially since the nervous system is so sensitive to oxygen lack. In those patients in which the symptoms are precipitated when the arm is exercised, there occurs a form of "intermittent claudication" at a distance, with the temporary neurologic deficits mentioned above, that will disappear on cessation of the exercise.

Now that Reivich and his associates have called attention to this vertebral-axillary blood diversion syndrome due to subclavian artery stenosis, we can proceed to look for such patients with the sure expectation that many will be discovered. In such patients, the pulse at the wrist will be feebler, and the blood pressure in the affected arm will be lower than in the unaffected one.

In the past some careful observers noted such differences but passed them off as coincidental since they were not mentally prepared for a possible connection between transient cerebral ischemic attacks and the presence of a weak radial pulse and reduction of blood pressure in one arm. Another telltale sign is the presence of a murmur over the subclavian artery over the obstruction. It is clear that with such simple but careful observations as one can make with the palpating finger, the blood pressure cuff and a stethoscope, findings can be elicited which should arouse suspicion about the existence of the vertebral-axillary blood diversion syndrome. With this suspicion in mind, one can proceed with another simple test to see whether cerebral symptoms are precipitated when the arm on the affected side is exercised.

The reverse flow of blood down the vertebral into the axillary artery is not dependent on a great reduction in subclavian flow, since as little as 10 per cent reduction in mean pressure in the subclavian beyond the obstruction is sufficient to arrest the upward flow through the vertebral into the basilar system. A little greater reduction than 10 per cent sets up a vertebral shunt into the axillary artery which can produce decompensation of the whole cerebral blood supply.

The importance of Reivich's studies at once come to mind. In the first place they are a model of how quantitative physiologic studies can be employed to clarify a clinical syndrome, in this case a most important one. They illustrate the importance of instrumentation in medical progress, for without the electromagnetic flow meter technique, quantitative measurements of blood flow would have been too difficult in human subjects. The method has opened a way for studying patterns of cerebral blood flow in cerebral vascular disease and we should soon learn why one person gets a stroke and another doesn't. Surgeons will now constantly keep this syndrome in mind when they are operating on the ascending aorta and the great vessels arising from it. What is especially valuable about Reivich's contribution, is that he has brought to light a syndrome that is surgically curable by endarterectomy and graft replacement of the stenotic portions of the subclavian artery.

L.H.N.

REFERENCES

1. Spencer, M. P. and Denison, A. B., Jr.: Square wave electromagnetic flowmeter: theory of operation and design of magnetic probes for clinical and experimental applications. IRE TR. no M. Electronics, pp. 220-228, 1959 (ME-6).

2. Reivich, M., Holling, H. E., Roberts, B., and Toole, J. F.: Reversal of blood flow through the vertebral artery and its effect on cerebral circulation. N. E. Jr. Med., 265: 878, November 2, 1961.

3. A new vascular syndrome. "The subclavian steal." Ed. N.E. Jr. Med., 265: 912, November 2, 1961.

Dissolution Of Intravascular Clots

A major therapeutic advance would be accomplished if a practical form of therapy were to be devised for dissolution of recently formed intravascular thrombi. The internist is constantly confronted with the ravages of thrombosis of coronary, cerebral, renal and peripheral arteries and is for the present quite helpless in the presence of most of these serious complications. Our knowledge of the thrombolytic system normally present in every individual has led to the introduction of preparations into clinical medicine designed to dissolve recent thrombi. The therapy is based on the principle that enzymes which exist in the body, and capable of thrombolysis, can be produced practically, that they can be administered intravenously and that they will dissolve clots given an adequate period of time for their action. What is necessary is to render the plasma anti-thrombotic, so that it will have strong clot-dissolving properties. If the clot-lysing ability can be sustained long enough it should be possible to eliminate intravascular clots at will.[1]

Occasionally, clot dissolution in the body normally can take place because the thrombus is a mixture of both fibrin and plasminogen, the plasminogen is converted into an active fibrinolytic enzyme "plasmin" by tissue activators which themselves are derived from the walls of blood vessels and other tissues. Some tissues, like lung, prostate, kidneys or uterus are rich in activators and this is probably why clots are rarely found in such organs. Unfortunately tissue activators are not available commercially and the only way to produce an active enzyme for therapeutic purposes is by converting plasminogen which is derived from fraction 111 of normal human plasma into plasmin with the help of streptokinase.[2] In this way an active preparation can be produced which is generally a mixture of varying amounts of plasmin and streptokinase.

The therapeutic problem in the use of such preparation is somewhat complex because the plasmin is fibrinolytic in vitro but when injected intravenously, it is neutralized by antiplasmin normally present in all plasma and only the free streptokinase remains to carry on fibrinolytic activity. To be sure when excessive amounts of "plasmin" are injected, they can overwhelm the antiplasmin present in the blood, but then serious complications such as blood fluidity, widespread proteolytic activity render its use undesirable.[2] Consequently only reduced amounts of the proposed fibrinolytic agent can be employed and of course the question arises whether the reduction of dosage does not at the same time eliminate the desired therapeutic effect. The only way to know whether any agent in the amounts used has therapeutic value is to inject the material and test the plasma for increased fibrinolytic activity.

At present two thrombolytic preparations are available commercially, Actase and Thrombolysin. Both are not pure plasmin (fibrinolysin) preparations but mixtures of variable amounts of streptokinase (a bacterial activator derived from hemolytic streptococci) and the fibrinolytic enzyme plasmin.

Actase apparently contains very small amounts of both streptokinase and plasmin. The plasmin is quickly neutralized by the antiplasmin in the plasma and the streptokinase is insufficient to exercise any predictable thrombolysis especially since many individuals, consequent to previous streptococcal infections, can rapidly inactivate the streptokinase because of variable amounts of antistreptokinase present in the blood. The belief therefore that this agent in the recommended doses would fail to cause thrombolysis has been confirmed by direct experimental trials in man.[3]

Thrombolysin contains considerably more streptokinase and plasmin per vial and the recommended dose of four vials per day can induce an active thrombolytic state. In this case also the plasmin is probably neutralized by antiplasmin in the blood and the thrombolytic activity is also due to the streptokinase remaining. It is well to remember therefore that since many individuals contain antistreptokinase in their blood in varying amounts, the successful therapeutic use of even the streptokinase fraction would depend upon this characteristic of the individual. It would be impossible to predict in advance what kind of thrombolytic state one could obtain from this preparation without knowing at the same time the amount of antistreptokinase present in the patient, a measurement which could only be obtained by specialized and strict laboratory controls.[4]

Since Actase and Thrombolysin vary so markedly in their therapeutic potency, it is interesting that the manufacturers each claim 50000 fibrinolytic units per vial although Actase contains one-quarter of the streptokinase and one-twentieth of the plasmin unitage of Thrombolysin. Clearly, even if the material were actually thrombolytic there remains the serious problem of standardization since each manufacturer apparently has his own fibrinolytic unit. Furthermore since the activity of the two fractions also varies, it leads to confusion compounded. Intelligent use of these preparations if they ever become therapeutically desirable requires that the physician know the content of their individual components as well as the kind of plasma the patient possesses, before intravenous use of the material. It would be desirable to be able to achieve a kind of titration in which the antistreptokinase present in the patients blood is overcome and then a sufficient amount of streptokinase remains to successfully lyse the clot. It may well be however, that this would involve administering such a great amount of the enzyme preparation as to produce blood incoagulability. This complication could be avoided if a simple, reliable and quick test were available for following the course of thrombolytic activity. Unfortunately such a test is not yet available.[5]

One matter which has also not been solved is the elimination of the pyrogenic effect of such preparations. It would appear reasonable that until such undesirable reactions are eliminated thrombolytic agents should not be given extensive clinical trials. In the first place febrile reactions prevent the maintenance of adequate thrombolytic therapy and in critically ill patients may provoke a fatal outcome.[2] A small but significant incidence of a severe pyrogenic reaction may far outweigh the benefits to be derived from thrombolysis, since it is not certain in any single case, as for example myocardial infarction, how much myocardium can be salvaged after lysing the clot. In an attempt to eliminate this danger some investigators have tried to limit their therapy to a 4-hour period. Such an expedient may well eliminate also the therapeutic benefit sought since long periods of treatment are often needed to effect complete dissolution of a thrombus. It would appear best to wait until all pyrogenicity has been eliminated from the preparations before embarking upon enzymatic fibrinolysis.[6]

The inherent potential of thrombolytic therapy is very great and the preliminary human observations certainly are very promising. Nevertheless much remains to be done before general utilization of thrombolytic enzymes can be recommended. There are still basic problems to be solved on the choice of the agent, simple laboratory guides for instituting and controlling the therapy, elimination of pyrogenic contaminants. Until such a time as these problems are solved we must recognize that it is not yet time to encourage clinical trials except for investigative purposes. It may well be that the solution to the thrombolytic problem may not lie in the enzymatic field at all and that non-toxic plasminogen activators will be found that can be taken by mouth and effect thrombolysis in a simple and benign manner. The important thing is not to be rushed into practical trials but to await the establishment of thrombolysis on a sound scientific basis by researchers who have but one purpose, the seeking of truth and the avoidance of error.

L.H.N.

REFERENCES

1. Kline, D. and Nahum, L. H.: Fibrinolysis I—Basic aspects of interest to the clinician. Conn. Med., 24: 73, 1961.
2. Nahum, L. H., Klein, D., and Fishbein, R.: Fibrinolysis II—Evaluation of enzymatic thrombolysis: Experiments with plasmin preparations in arterial, venous thrombosis. Conn. Med., 24: 139, 1960.
3. Fletcher, A. P., Sherry, S., Olkjaersig, N., Smyrmotis, F. E., and Jick, S.: The maintenance of a sustained thrombolytic state in Man. II—Clinical observations on patients with myocardial infarction and other thrombo-embolic disorders. J. Clin. Invest., 38: 1111, 1959.
4. Fletcher, A. P. and Sherry, S.: Thrombolytic (fibrinolytic) therapy for coronary heart disease. Circulation, 22: 619, 1960.
5. Fletcher, A. P., Olkjaersig, N., and Sherry, S.: The maintenance of a sustained thrombolytic state in man. Induction and effects. J. Clin. Invest., 38: 1096, 1959.
6. Watt, D. L. and MacMillen, R. L.: Evaluation of intravenous human fibrinolysin as a treatment for recent intravascular thrombosis. Can. M. A. J., 83: 1436, 1960.

Physician Population Boosted By 4,500

The physician population of the United States and its possessions increased by about 4,500 in 1961, the American Medical Association reported recently.

Medical licensure statistics for 1961, compiled by the AMA's Council on Medical Education and Hospitals, were published recently in the AMA Journal.

A total of 8,023 first licenses to practice medicine and surgery were issued in 1961, the report showed. Since approximately 3,500 physicians died during the year, the physician population increased by about 4,500, compared with a net gain of about 4,330 in 1960.

Of 8,714 applicants for licensure by written examination, 7,650 passed while 1,064 (12.2 per cent) failed, the report showed. However, the rate of failure in approved medical schools was 2.8 per cent. Twenty-six approved schools had no failures among their graduates.

The greatest number of graduates from any one school to be examined was 214 from the University of Tennessee College of Medicine, the report said.

Statistics also were reported on the Educational Council for Foreign Medical Graduates, founded in 1957 to certify that foreign-trained physicians entering the United States had an education equivalent to that of graduates of approved medical schools in this country.

The Council, which has held eight qualification examinations for foreign medical graduates, said the "net effect" of the ECFMG certification plan has been not to restrict but rather to increase both the number and the quality of foreign medical graduates coming to the United States for graduate training in hospitals.

THE PRESIDENT'S PAGE

Dr. Leonard W. Larsen launched a new venture at the AMA meeting this year by personally inviting the president of each state medical society to the meeting. The fact that all except one of the states' presidents attended indicates the tremendous interest the state leaders in medicine have in the parent organization and its current activities. The presidents of the states medical societies participated at the inauguration of the new AMA president George M. Fister and were accorded places upon the stage. This detail is given to indicate that leaders in medicine throughout the U. S. can be brought together to cement the medical profession into a more cohesive whole. The feeling of unity was further demonstrated by the fact that all the technical exhibits and auditoriums for rendering scientific papers were housed under one roof at the McCormick Place; the business sessions took place in the Palmer House.

Your president took advantage of attending the organizational meetings of the House of Delegates and many of the reference committees. One thought that prevailed throughout the discussions was that the art of medicine which had occupied a lesser position than science in medicine was again assuming an equal or superior position. The human factor, the voluntary response, the free choice of the individual in a free country punctuated the discussions of the 84 resolutions.

Space does not permit to mention but a few of the important resolutions passed. Social Security was again overwhelmingly defeated. A congress for mental illness was supported and scheduled to take place in Chicago in October. Injuries to students participating in athletics and injuries on the farms were considered of such importance that committees were chosen for detailed study and recommendations requested to lessen these accidents. There are 6,000 airports in the U. S. employing thousands of personnel and carrying millions of travelers; but only three airports have specific active medical personnel assigned. The House requested that facilities be set up for the treatment of all possible illnesses and accidents that might occur in air transportation.

One of the impressive parts of the delegates meeting was the tremendous impact which the two medical student delegates from the AMA students organization made upon the House of Delegates by their knowledge of medical problems and their articulate ability. Their interest in international medical students organization composed of 36,000 medical students is definitely of great potential importance.

Dr. George M. Fister, the new president of the AMA, closed his inaugural address by stating that there would be no let up in campaign pressure to preserve the high standards of our voluntary free choice-medical care system.

Clyde L. Deming, M.D.

FROM THE GENERAL MANAGER'S OFFICE

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Special Meeting Of The House Of Delegates

On July 19th, a Special Meeting of the House of Delegates of CSMS was held at the New Haven Medical Association Library to complete consideration of the proposed Amendment to the Preferred Contract, submitted by the Board of Directors of Connecticut Medical Service, Inc.

The following actions were taken:

1) It was voted not to approve the proposed Amendment to the Preferred Contract. The vote: To approve—31; To not approve—78
2) Without dissent, it was voted to transmit the following statement to the Board of Directors of CMS, Inc.:

Suggestions Of The House Of Delegates Re: The CMS Preferred Contract

In voting to disapprove the proposed Amendment to the Preferred Contract submitted by the Board of Directors of CMS, Inc., the House of Delegates of the Connecticut State Medical Society has been mindful of the interests of subscribers to that Contract and is in favor of broader coverage under it. The House of Delegates heartily endorses inclusion of the added benefits proposed in the Amendment as well as any other benefits which the CMS Board finds it possible to provide within the limits of sound actuarial principles, *provided* the basic features of the present Preferred Contract are not increased; i.e., the rate of Subscriber charges (premiums) the Payment Schedule for physicians' services, and the income levels for Service Benefits eligibility.

To this end, the House of Delegates strongly urges the CMS Board of Directors to give serious consideration to the following suggestions:

1. *Coverage*: Amend the Preferred Contract to cover not only the additional services proposed in the Amendment submitted, but also other services of value to CMS Members such as concurrent medical care, consultation, intensive medical care, and nursing home visits. Thus, through the acceptance by physicians of substandard fees for the added services, CMS Members covered under the lower-income Preferred Contract could enjoy broad Service Benefits coverage similar to that now available to higher-income CMS Members under the Community Contract, without fostering competition between the two plans. The substandard Preferred Contract payments, as indemnity allowances, would not be satisfactory to most high-income individuals or groups. At the same time, for older CMS Members, the Preferred Contract and its counterpart, the Individual Contract, would approach the extent of coverage recommended by AMA-National Blue Shield for a so-called "Senior Citizen Contract".
2. *Funding*: Instead of increasing payments to physicians as proposed, utilize the proposed increases in payments to physicians and also other Preferred Contract surplus monies to fund the additional services suggested, while maintaining the subscriber charges (premiums) at present levels, or, if feasible, reducing them.

If these suggestions can be converted into amendments to the Preferred Contract by the CMS Board, it is the opinion of the House of Delegates that real progress will have been made toward providing a greatly improved medical service contract which will unquestionably be in the public interest.

The House of Delegates of the Connecticut State Medical Society pledges itself to act upon such new proposals with the utmost dispatch.

COUNCIL MEETING

Thursday, July 5, 1962

A meeting of the Council was called to order by Chairman Ralph L. Gilman at 2:00 P.M. on Thursday, July 5, 1962. Present in addition to the Chairman were: Drs. Deming, Pitock, Goldberg, Hess, M. Caplan, Cullen, Scully, Bradley, Cornwell, Grendon, Davis, Murray, Jr., Chartier, Dean, Gorman, Martin, Sundquist, Gevalt, Egan, Abbot, H. Caplan, Phillips, Beardsley. Also present: Mrs. Lindquist, Mr. Burch, and Dr. Richards. Absent were: Drs. Gardner, Wilson, O'Connor, Grant, Hughes, and Hastings.

APPROVAL OF MINUTES. The minutes of the Council meeting of May 23, 1962, were approved as printed.

SPECIAL COMMITTEE TO FORMULATE THIRD PARTY POLICY. The Council was informed that Thomas M. Feeney, Hartford, is unable to serve on this Committee. It was felt unnecessary to appoint a replacement at this time.

COMMITTEE ON THIRD PARTY PAYMENTS; DIVISION ON MEDICAL ECONOMICS. It was VOTED to accept, with regret, the resignation of Charles Polivy, Hartford, as Chairman of the Committee on Third Party Payments and as Chairman of the Divisional Board on Medical Economics. It was further VOTED to appoint Arnold H. Janzen, Hartford, to replace Dr. Polivy in these two posts.

COMMITTEE ON HEALTH CAREERS. It was VOTED to accept the resignation of Robert B. Pennington, Middletown, as Chairman of the Committee on Health Careers. It was further VOTED to request Bernard F. Mann, New Haven, to replace Dr. Pennington as Chairman of this Committee.

CANCER COORDINATING COMMITTEE; PANEL ON PHYSICIAN-HOSPITAL MEDIATION. It was VOTED to accept the resignation of William M. Stahl, Jr., Danbury, as a member of the Cancer Coordinating Committee, as a member of the Executive Committee of the CCC, and as a Fairfield County representative on the Panel on Physician-Hospital Mediation. It was further VOTED to appoint Nilo E. Herrera, Danbury, to replace Dr. Stahl as a member of the Cancer Coordinating Committee; to request the Chairman of that Committee to recommend a replacement for Dr. Stahl on its Executive Committee; and to appoint Vincent A. Gorman, Bridgeport, to complete Dr. Stahls' unexpired term as a member of the Panel on Physician-Hospital Mediation.

REPRESENTATIVES TO CONFER WITH THE INSURANCE COMMISSIONER. Since there appeared to be no further assignment for this group of representatives, appointed on May 11, 1960, it was VOTED to discharge the Representatives to Confer With the Insurance Commissioner.

CONNECTICUT HEALTH LEAGUE'S COMMITTEE ON PREPAYMENT. It was VOTED to appoint David A. Grendon, Sharon, and Stephen H. Deschamps, Bridgeport, to represent the Society on the CHL's Committee on Prepayment.

LIFE MEMBERSHIP. It was VOTED to approve a change in status from Active Member to Life Member of the Society for the following:

William H. McMahon, South Norwalk
Maxon M. Senfield, Ansonia
Halford B. Kneale, Bridgeport

It was further VOTED to approve an application form for Life Membership, to be used in the future by Active Members requesting this change in status.

CUBAN REFUGEE PHYSICIANS. In a letter dated May 28, 1962, John D. Booth, Danbury, Chairman of the Committee on Medical Education and Licensure, presented his opinions as to what measures could be taken to "ease the situation as far as making Cuban medical refugees available for practice in this State without actual licensure here." In brief, Dr. Booth believes that each case must be judged entirely on its merits, since "to a great extent the duties and decisions of the Medical Examining Board are controlled by statute" and this usually "precludes the possibility of using any discretionary power." It is also understood that, in much the same way, the engagement of such physicians as house officers in general hospitals is subject to quite rigid rules and regulations.

It was VOTED to direct the Secretary of the Society (Dr. Hess) to pursue the matter of placement for Cuban refugee physician with the official organization representing them, and to notify all general hospitals in the State as to how and with whom to make contact about the possibility of engaging qualified doctors in this category as interns in those hospitals.

COMMITTEE ON INVESTMENT OF FUNDS. It was VOTED to approve the report and recommendations of this Committee as follows:

"One-third of the general fund is to be held in a highly liquid state. This would mean that this section of the over-all fund would be committed to short term U. S. Treasury Bonds or held in Mutual Savings Banks.

The remaining two-thirds of the General Fund would be committed to a balanced investment program to be designed and executed by the Investment Committee. The Committee would in turn be controlled by the laws governing the Investment of Trust Funds in the State of Connecticut. Thus the committee as a body would be held to the performance of a prudent professional investor, with the advice and recommendation of the Trust Officers of the bank. The committee would be empowered to make specific selections in the matter of stocks, bonds and other investment media; that the committee be required to provide periodic accountings every 4-6 months.

The program as designed means that approximately 45 per cent of the total General Fund will be in a highly liquid state (one-third specifically and at least 30 per cent of the balanced fund) so that ample monies will be readily available for capital projects should they appear on short notice."

Respectfully submitted,
I. S. Goldberg, Chairman
T. M. Feeney
C. L. Deming

THE 1962-63 MEDICARE CONTRACT. Dr. Gilman reported on the sequence of events leading up to the expiration of the 1961-62 Medicare Contract on May 31, 1962, and of the approaching expiration of an extension granted by the Medicare Office until June 30, 1962. It was VOTED to approve the action of the Chairman, the President and the General Manager in forwarding signed copies of the 1962-63 Contract to Washington, D. C. and to CMS, Inc., with the assurance that any features of the Contract which the Medicare Committee and/or the Committee on Third Party Payments may wish to renegotiate at a later time will be given appropriate consideration by Medicare officials.

COMMITTEE ON HOSPITALS.

a) It was VOTED to approve the report and recommendations of the Committee on a matter in which the provision of legal counsel by the Society had been requested by the Chief of Staff of the New Milford Hospital. The recommendation of the Committee was "that the hospital staff engage the services of counsel to help study its problem, or, if it so wishes, ask aid from the Legal Department of the American Medical Association . . ." It was felt by the Committee that the matter under consideration was not within the jurisdiction of the Connecticut State Medical Society.

b) It was VOTED to approve the report and recommendations of the Committee on a matter concerning the denial of privileges to a member of the Society by a general hospital in the State. It was further VOTED to direct the General Manager to implement that portion of the Committee's recommendation which reads: "That the Council suggest to the Administrator and the Credentials Committee of (the hospital concerned) that they inform (the physician concerned) of the reasons for denial of privileges to him."

c) It was VOTED to accept, with commendation, the evaluation and comments of the Committee on Hospitals with regard to the Final Report of the Governor's Committee on Hospital Planning. It was further VOTED to direct the President and the General Manager to draft a letter of reply to Governor Dempsey's request for the Society's opinion as to whether a Statewide Hospital Planning Agency, as proposed by the Governor's Committee, is necessary and/or desirable. The letter of reply will be based on the following: "The Committee on Hospitals of the CSMS believes that if, in the opinion of the Commissioner of Health and other state officials, a Statewide Hospital Planning Agency would complement (rather than duplicate) the functions presently being carried out effectively by existing agencies such as the Department of Health's Council on Hospital Survey, Planning and Construction, an Agency of the general nature outlined in the Report could be established by an act of the General Assembly as a voluntary, non-profit service corporation, sponsored and supported financially by all interested voluntary agencies in Connecticut which are concerned with health and medical care."

It was further VOTED to send copies of the comment and evaluation of the Committee on Hospitals, to the Connecticut Hospital Association, members of the Governor's Committee on Hospital planning, the Commissioner of Health and others who may have an interest in the proposal to establish a Statewide Hospital Planning Agency.

COMMITTEE ON POSTGRADUATE EDUCATION. It was VOTED to approve the plans of this Committee to hold a "Symposium on Medical Education in the Community Hospital" at the Yale-New Haven Medical Center on Wednesday, May 15, 1963, and to approve the anticipated expenditure of one-third of $750 (with the Connecticut Hospital Association and the Yale School of Medicine contributing one-third each) to defray the costs of the Symposium.

CONNECTICUT MEDICAL SERVICE, INC. The Proposed Amendment to the CMS Preferred Contract: Having determined that the Report and Recommendations of the Committee on Third Party Payments with regard to the proposed

Amendment had been filed for transmittal to the House of Delegates, and having determined that all of the eight component county medical associations had acted upon the proposed Amendment and filed reports of their actions with the Council, it remained for the Council to direct the Chairman as to what recommendations the Council wished to have him present to the House of Delegates. By a roll call vote, the following motion was adopted:

IT IS MOVED: That the Council recommend to the House of Delegates of the Connecticut State Medical Society that the proposed Amendment to the CMS Preferred Contract be disapproved by the House, and present statements in support of this recommendation to the Delegates.

Voting in favor of the motion: Deming, Pitock, Gilman, Goldberg, Hess, M. Caplan, Scully, Bradley, Grendon, Davis, Dean, Gorman, Gevalt, Abbot and H. Caplan (15).

Voting against the motion: Cullen, Cornwell, Murray, Chartier, Martin, Sundquist, Egan, Phillips and Beardsley (9).

It was then VOTED to request the Chairman to include in his official report to the House of Delegates the suggestions (counter-proposals) made to the CMS Board of Directors at the joint meeting of the Liaison Committees held on February 1, 1962.

It was further VOTED to request the Speaker to call a Special Meeting of the House of Delegates on Thursday, July 19, 1962 at the New Haven Medical Association Library, 364 Whitney Avenue, New Haven, at 8:00 P.M.

It was further VOTED that, in order to permit free and open discussion of all matters pertaining to the business to be transacted, the Speaker be requested to rule that the Special Meeting of the House of Delegates on July 19th be held in a "Closed Session" (Bylaws—Article V, Section 9), unless his decision is overruled by a majority vote of the seated Delegates.

REPORT OF LEGAL COUNSEL. It was VOTED to accept the written report and recommendations of Attorney Edward L. Marcus with respect to attempting to submit to the State Attorney General for official ruling a question drafted and proposed by the Section on Radiology. Mr. Marcus advised that such a question not be submitted to the Attorney General at this time. It was further VOTED to inform the officers of the Section on Radiology of Mr. Marcus' advice and reasons therefor. It was further VOTED to direct the Chairman to appoint an ad hoc committee, composed of Drs. Grendon, Richards and others, to meet with representatives of the Section on Radiology to discuss current problems of mutual concern. The Chairman appointed the committee as follows:

David A. Grendon, Sharon, Chairman; Nicholas Phillips, Norwich; John R. Egan, Old Saybrook; William R. Richards, New Haven.

ANNUAL MEETINGS OF THE SOCIETY.

a) Connecticut Chamber of Commerce—As a consequence of the CCC having put on a successful public luncheon for Dr. Edward R. Annis of the AMA, a part of Dr. Annis' visit to the Annual Meeting of the Society last May, it was VOTED to reimburse the CCC in the amount of $1,000 for expenditures and services attendant to holding the luncheon.

b) The 1963 Annual Meeting—In view of past Council decisions relative to rotating the meetings of the House of Delegates among the major county areas, it was VOTED to postpone final decision on holding the Scientific Assembly of the Society at Hartford in 1963, pending decision of the Fairfield County Medical Association relative to holding the 1963 Annual Meeting of the House of Delegates in that county area. Representatives of the Fairfield Association are asked to report on this decision at the next Council meeting. It was further VOTED to set the dates for the 1963 annual meetings from Tuesday, April 30th, through Thursday, May 2nd.

MEETING OF THE FIVE AGENCY CONFERENCE. Drs. Deming and Pitock reported that a very successful meeting of the Five Agency Conference had been held on June 14, 1962 at the New Haven Country Club, with Blue Cross acting as host. At that meeting, agreement was reached on the content of a joint statement which was to be released to the press and the gist of which was to be incorporated into a paid advertisement to be placed in newspapers throughout the state. The advertisement was titled: "What Is Your Health-Wealth?". Dr. Deming reported that those agencies which had advertising budgets were willing to contribute a larger share of the funds for this venture, but suggested that the Society make a "token" payment toward defraying its costs. It was VOTED to accept Dr. Deming's Report, as printed, including a recommendation that $500 be contributed to the advertising project. In accepting his report, the Council did not make it clear whether Dr. Deming was to present the Council-adopted resolution: "That the practice of pathology, radiology, psychiatry and anesthesiology be recognized as the practice of medicine, to be engaged in by physicians rather than by hospitals" at the next meeting of the Five Agency Conference or, as he had suggested, refer it to the Special Committee to Formulate Third Party Policy. Decision on this matter will have to be made at the next Council meeting.

AN AUTOMOBILE FOR THE SOCIETY. Dr. Hess, reporting for the Committee on Building Management, recommended that the Society lease a car of the station wagon type for official use by members of the office staff. In general, this entails a monthly leasing charge on a three year contract with all necessary insurance coverage and services included, except for gasoline. It was VOTED to accept the Report of the Committee.

COMMITTEE ON PUBLICATIONS. As recommended by the Chairman of this new Committee, Denis S. O'Connor, it was VOTED to allot the sum of $200 as the operating budget for the Committee for the current year.

DISTRIBUTION OF PAMPHLETS. It was VOTED not to approve a proposal of the PR Section to print and distribute pamphlets by direct mailing to members of the Society.

COMMITTEE ON REHABILITATION. Receiving further information from John C. Allen, Chairman of this Committee, on a proposal that the Society co-sponsor a study or survey of rehabilitation services and facilities in the State, with the Connecticut Health League acting as principal sponsor, administrator and financial supervisor of the Federally-financed project, it was VOTED not to lend official sponsorship to this proposed undertaking. There appeared to be general agreement that, if requested, advisory representatives of the Society could participate in such a study to whatever degree might be desired by those conducting it, but that even limited responsibility for the administration of a large-scale operation of this nature could not be assumed by the Society at this time.

DELEGATE TO THE MAINE MEDICAL SOCIETY. The Council received as information the report of Sydney Luria, Bridgeport, on his attendance at the 1962 Annual Meeting of the Maine Medical Society as a Delegate from the CSMS.

EXEMPTION FROM DUES. On the recommendation of Jachin B. Davis, Councilor from the New Haven County Medical Association, it was VOTED to exempt from payment of 1962 CSMS dues Michael Wugmeister, New Haven, subject to simultaneous exemption by the New Haven County Medical Association from payment of its 1962 dues.

LIAISON COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS. It was VOTED to appoint James R. Cullen, Hartford, Chairman of this new committee which was established at the Council meeting on May 23, 1962. The Liaison Committee membership is as follows:

AMA Delegates and Alternates—James R. Cullen, Hartford, Chairman; Norman H. Gardner, East Hampton; Max Caplan, Meriden; Vincent A. Gorman, Bridgeport; Stewart P. Seigle, Hartford; John H. Grossman, Bridgeport.

Others—Howard J. Lockward, Manchester, Committee on Hospitals; John C. Leonard, Hartford, Committee on Postgraduate Education; Marvin Lillian, New Haven, alternate to Dr. Leonard.

REPORT OF AMA DELEGATES AND ALTERNATES. Drs. Cullen, Caplan and Gorman reviewed briefly some of the highlights of the 1962 Annual Meeting of the AMA House of Delegates in Chicago, June 25-28. It was requested that a fuller report be presented to the Council at its next meeting.

CONNECTICUT CONGRESS ON MEDICAL QUACKERY. Max Caplan, Chairman of the Advisory Committee planning this Congress, reported on his investigations as to the need for and/or the practicality and cost of obtaining insurance against possible suits for libel or slander which might arise from putting on a meeting of this nature. Dr. Caplan will make a final report on this matter to the Council when his study has been completed.

ANIMAL RESEARCH LEGISLATION. In a letter to Clyde L. Deming, Averill A. Liebow, Chairman of the Planning Committee of the Connecticut Society for Medical Research, offered a recommendation that the Society appoint an ad hoc Committee on Medical Research "with the aim of effectively organizing and focusing support (for effective animal research legislation) among the physicians of the State." It was VOTED to refer this request to the Committee on State Legislation for evaluation and report to the Council.

DATE OF NEXT MEETING. It was VOTED to direct the Chairman to set the date for the next Council meeting.

1962 MEETINGS

Sept. 19—Hartford Chapter of the American Cancer Society. Time and place of meeting not decided yet.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Oct. 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire.

Nov. 6-7-8—New England Postgraduate Assembly, Statler Hilton, Boston.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

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THIRTY-SEVENTH CONNECTICUT CLINICAL CONGRESS

of the

CONNECTICUT STATE MEDICAL SOCIETY

and the

YALE UNIVERSITY SCHOOL OF MEDICINE

YALE-NEW HAVEN MEDICAL CENTER

333 Cedar Street, New Haven

SEPTEMBER 28, 1962

The 1962 Clinical Congress will be concentrated in one day and all sessions will be held in the modern Mary S. Harkness Memorial Auditorium in Sterling Hall of Medicine on Friday, September 28, 1962 from 9:30 A.M. to 4:30 P.M. This comfortable auditorium will accommodate an audience of 450.

The program for the 37th Clinical Congress will focus on therapeutic considerations of current importance in the various branches of medicine and surgery, with special emphasis on recent advances. Illustrative cases will be presented for discussion.

Subjects to be discussed will include the following:

Usefulness of Clinical Chemistry and Enzymology

The Disturbed Kidney

Shock In Infectious Illnesses

Hypothermia

Suicide

In addition to these sessions, there will be special clinical and scientific exhibits and the program will include a Clinicopathological Conference.

The Yale-New Haven Medical Center is easily reached; take Exit 47 on the Connecticut Turnpike and Exit 61 on the Merritt and Wilbur Cross Parkways. Ample parking facilities will be available in the medical center area.

Luncheon for visiting physicians will be served in the cafeteria of the Grace-New Haven Community Hospital.

The registration fee of $5.00 provides for admission to all sessions of the Congress. Hospital residents and interns will be admitted without charge, if a statement of their position, signed by an official of the hospital, is presented at the registration desk.

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U.S.S. Hope

Paul W. Tisher, m.d.
New Britain

The trip that I took to Indonesia can be divided into three phases:

Leaving New York, I flew directly to Cairo by way of Paris which took six hours by jet—Rome, Athens and Cairo. Tourist reception in Cairo was good. There are many beggars on the streets but in general the city is very picturesque and radically different. It is most essential to have a good dragoman as a guide. I found the Pyramids, the desert, the Nile all very fascinating to see.

I spent one morning at the Cairo Municipal Hospital Department of Ophthalmology which customarily sees 500 patients each morning. These patients were being taken care of by three men and sixteen nurses. They use an assembly line system. The pathology department has one of the most extensive, elaborate and detailed compilation of eye pathology that I have ever seen. It is excellently done and justly worthy of their pride in it. Trachoma is, of course, a great problem and their research of its etiology is excellent. They do all types of eye surgery efficiently and with good results.

Flying from Cairo to Calcutta by Lufthansa was a long but very pleasant trip. The continuation of the poverty observed in Egypt was noted to be even greater in severity and numbers in India. In neither place was there any objectionable conduct in contact with these people. Dr. Sen of the Institute of Ophthalmology in Calcutta demonstrated their cataract technique doing ten cataracts for me in a matter of twenty-five minutes time, on his day off! Their usual number is from thirty to forty a day and he stated that at the present time one hundred thousand cataracts are done in India and that to really satisfy the demand it would be necessary to do five hundred thousand a year. The technique is simple, quick, and with no sutures. The incidence of loss of vitreous and iris prolapse is about the same as in our country, and end results are equally as good as ours with much less preparation, fuss and fuming. However, the patients are younger averaging 45-50 years of age, more docile and easily satisfied. When ordered to stay in bed flat for four or five days they do so with no complications physically or emotionally.

The next stop was Bangkok, Thailand, which presented a better economic and social picture. Dr. Soomsawardi, a recent graduate of eye training at the Massachusetts Eye and Ear Hospital, was my host and again under the system of socialized medicine it was customary for two or three doctors to see four or five hundred patients every morning and then in the late afternoon and evening, to run their own private clinics to make their own living.

The next major stop was Djakarta, Indonesia, where I stayed for ten days. Djarkarta is a congested, spread-out town with people living in nice houses yet in their backyards and vacant lots in the same area people live in cardboard shacks or bamboo and grass huts put up in any fashion to keep the rain off and to have some privacy. The most beautiful building in town is, of course, the government residence—the palace. The second best is the American Embassy which makes us quite proud when we look at it. It was the only building in Djakarta where one could get frost bitten from the cold and eat American hamburgers! Ambassador Jones is an extremely capable representative of the American people abroad. The streets of Djakarta are extremely congested with traffic—bicycles, motorcycles and three-wheeled bicycle adaptations of the rickshaw. Trucks of all sizes outnumber passenger cars and buses are homemade rigs built on to a jeep frame to certain specifications and run by the individual owner according to how he sees fit. Needless to say, transportation for foreigners is almost impossible and there are practically no taxi

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cabs or street cars. The "betjaks" are required to have a license and a bell on the vehicle which is usually part of a car spring which clanks rather than rings, and the streets sound like a junk yard tuning up. The Russians are building a large stadium for the Asian Olympics. The French and Japanese are building a big international hotel and when it is all done, naturally the Americans will run it.

The country is more-or-less under military rule with some difficulty from rebel opposition. There are a considerable number of military trucks racing around with armed soldiers day and night. Their presence helps to maintain order. Hotel accommodations are practically non-existent and good restaurants are rare. Tourism is not an accomplished business as yet in Indonesia. Hospitals are basically good and the medical school in Djakarta has been vastly improved by the University of California Contract which in three years' operation has raised the number of graduates from thirty doctors per year to about one hundred per year. A great deal of the hospital necessities are supplied by the I.C.A. (American) and German, French and Russian contributions. Again, all the doctors work on a government contract from eight in the morning to one in the afternoon for about ten dollars a month (our money) and then run their private clinics from three to midnight to make a living. In the Department of Ophthalmology under Dr. Isaac Salim, excellent rsearch is being done in trachoma.

In the Moslem countries it is impossible to obtain the permission from the families to take an eye from a corpse for a corneal transplant. Consequently, little of this type of work is done. Several years ago when there were active battles on the streets of Djakarta, the bodies of so-called rebels went unclaimed and the Eye Department had an excellent source of corneas for transplants; however, this stopped when order was restored.

The principal eye problems on Java were trachoma, xerophthalmia (lack of Vitamin A), the usual run of cataracts, and now a little more glaucoma. Standards are rising, but there is still a long way to go.

A visit to Bandung up in the mountains from Djakarta was most pleasant, the country-side was beautiful and the town is restful after the massive population congestion in Djakarta. An excellent University being staffed by American-trained professors through the efforts of the Kentucky Contract and the University of Kentucky was evident. They have a two-hundred bed ophthalmological hospital there which is outstanding in its accomplishment on the Island of Java. It is run by three ophthalmologists doing an average of three thousand eye operations a year. Interesting enough is the fact that only five or six squint cases a year are found of that grand total.

PHASE TWO of the trip involves boarding the ship HOPE in Makassar, Salawesi, which is an interesting but different town compared to Djakarta and a very small but good university with a medical school, graduating about twenty-five students a year with practically no text books, equipment, etc. The HOPE was anchored at the dock. It is 575 feet long with a crew of 250 on board, plus 25 American nurses, 30 Indonesian nurses, ten American full-time staff doctors, ten Indonesian staff doctors part-time, about 20 laboratory and technical staff, a dentist and a number of rotating specialists like myself varying in number from five to fifteen. Concentration of personnel aboard ship is due to the difficulties in communication, transportation and housing facilities. It is easier to call your home in the United States from the ship HOPE than it is to call the next town. Cablegrams, letters, etc., take from one day to one month to arrive and about half the letters never get there or get to wherever you mailed them. Three operating rooms on the HOPE are kept very busy and local doctors came aboard the ship to use the facilities and the help from the staff doctors. The HOPE doctors also go ashore to assist and work with the local doctors. Specialists in all fields are needed and the trip out and back, the experience gained and the feeling of satisfaction one gets from doing something of this kind is well worth the time it takes.

In addition to the surgical work done, the HOPE sets up, with the local doctors cooperation, a polyclinic ashore where large numbers of routine, unusual and actual bizarre cases are seen.

Accommodations on the ship are excellent and the food is out of this world. The patients are extremely gratified and frankly the social life is a bit of a strain at times as the social intercourse with the people on the islands is almost as necessary as the medical relationship.

This is part of the problem of being a diplomat because each and every individual on the HOPE carries the reputation, the honor and integrity of his friends and neighbors—the American people of the United States. It is a responsibility that cannot be lightly considered. The local people arrange outings on Sunday and off days at considerable expense and effort on their part, sometimes involving trips into the mountain areas which require armed guard escorts because of the persistent activity of the so-called bandits.

The ship is amply supplied with medications, equipment and where-with-all to work. The Esprit de Corps is excellent and most volunteers have a very pleasant memory of their tour of duty.

The THIRD PHASE involved my return from the ship which was then located at Ambon 2,000 miles from Djakarta.

On the last Tuesday afternoon of my stay, I did six eye operations. At five o'clock a military plane landed on the makeshift field just before sunset. Three hours later, when the three new doctors who had arrived on the plane had boarded the ship, I discovered I was slated to leave at sunrise for Djakarta although there was no replacement for me at this time. The next plane contact with the outside world was one month later; so I left, unfortunately not knowing the outcome of my operations but trusting the men whom I had been training in eye work to carry out the postoperative care.

I arrived in Djakarta late the next day and the following one stayed close to the HOPE House because it was the day of planned demonstrations against the Americans because of the Lumumba situation. As a tribute to our excellent American diplomatic activities under the direction of Ambassador Jones, nothing happened, and on Friday business was as usual. I had my interview with President Sukarno on the basis of a letter of greetings for me by our then Governor Abraham Ribicoff. This interview was most pleasant and I was impressed by the capabilities of this man even though he is widely criticized by many different factions. At 7 p.m. that night I left for Singapore where I was fortunate to meet Mrs. Tisher and after a few days stay there we returned home via Hong Kong, Japan, Honolulu and the West Coast.

Summation

All-in-all I was most satisfied with my experience and would readily return especially to the area where there were so many blind people with so few to care for them. The people of Indonesia are trying to build a democracy without experience, without adequate resources and with prejudices based upon their years of rule by their previous colonizers. I believe sincerely that the ship HOPE represents a dramatic symbol of the American people's desire and willingness to extend a helping hand to the people of the countries that desire such help. We were invited guests of the country and were treated as such. We were exposed to the obvious needs of the people and our only hope is that we were able to contribute something to the establishment of those people as an independent nation with the ability to care for themselves and to be able to stand with other free men of the world in the future battle against the tyranny and oppression as represented by the communistic aggression in the world.

The U.S.S. HOPE is at present in Northern Peru.

Members of the Connecticut State Medical Society reading papers before other organizations are requested to submit their papers to the JOURNAL for consideration by the Board of Editors for publication. Please send them to:

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Clinical Medicine

Treatment Of Cardiovascular Disorders With Corticosteroids

Louis H. Nahum, m.d.
New Haven

Hypertension or even congestive heart failure may at times be a disguise for the existence of adrenal cortical hyperfunction. Similarly hypotension and shock may appear during acute illnesses, minor injury or following surgery as a result of an underlying hitherto unrecognized hypofunction of the adrenal cortex. In conditions of this kind the physician must be aware of such possibilities since they are a direct consequence of the biochemical derangements that result from hyperfunction and hypofunction of the adrenal cortex. There are situations however, in which the adrenal cortex is not directly involved but in which nevertheless steroids are of real practical value, but they must be used as drugs for their pharmacologic value not their physiologic action. As pharmacologic agents effect is it that corticosteroids produce which might be of value in cardiovascular disturbances? Essentially, they are anti-inflammatory salt-retaining but also have recognized effects upon the normal myocardium.

An animal that has been subjected to protracted use of corticosteroid drugs will develop hypervolemia because of salt-retention. The extracellular and intravascular fluid volume will increase venous return and cardiac output thus causing the heart to function under a potent permanently increased burden. In such a situation there is also a loss of potassium from myocardial cells and in the presence of digitalis therapy an increased irritability of the myocardium will result. Some investigators notably Selye[1] have shown myocardial damage in rats treated with desoxycorticosterone. His experiments however, were performed under special conditions which excludes any direct clinical implications of this finding in the human patient. Some have reported effects of steroids on the toad heart resembling that of digitalis, but this is not true for guinea pig hearts nor in heart lung preparations of the dog in which as much as 10 mg. hydrocortisone was perfused without effect. But there are other adrenal steroids like aldosterone whose inotropic effect on the dog heart has been well documented.

There is one effect of adrenal steroids on the heart on which there is general agreement, namely, to accelerate the speed of conduction from atrium to the ventricle. The mechanisms by which this effect occurs is not clear. It is suggested, however, that it is caused by increasing the effects of adrenergic stimuli. The action to accelerate A.V. conduction certainly suggests possible indications for the use of steroids in the treatment of acute or chronic heart block following myocardial infarction. Only a rare isolated instance of success has been reported[2] so that for the present such treatment is essentially based on theoretical considerations.

In acute myocardial infarction corticosteroids have been recommended as adjuncts in the treatment. The reasoning behind this recommendation is based on the assumption that an inflammatory reaction which occasionally accompanies necrosis of the heart muscle, may itself threaten survival and by minimizing the systemic response to inflammation, the metabolic demands on the injured heart will be correspondingly reduced. This view has been put to the experimental test in dogs.[3] Those treated with cortisone after experimental infarction showed increased mortality, increased vascularity of the myocardium and a smaller area of residual fibrosis in comparison with untreated controls. Experienced observers in the clinic failed to confirm these beneficial effects although they did find a reduction in

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fever, leucocytosis and at times a disappearance of conduction defects. Furthermore, the patients in shock seemed to respond more readily to vasopressor agents. It is clear enough that treatment based upon theoretical considerations should only be a start for a clinical investigation in which a large series of individuals, one group without corticosteroid therapy is compared with a similar group with similarly damaged hearts that received corticosteroids. The protean nature of acute myocardial infarction will make treated and untreated similar matched controls difficult to collect.

In myocarditis both of viral and especially of rheumatic origin we are on more solid ground. Since the pharmacologic effect of steroids is to reduce or abolish inflammatory responses, their use in acute rheumatic carditis is not only theoretically sound but practically important as can be attested by the dramatic control of the clinical manifestations of acute rheumatic endocarditis, myocarditis and pericarditis. In less critical cases the preference of corticosteriods to salicylates is still controversial and no proof exists that corticosteroids afford better protection against the development of chronic valvular deformities than the salicylates do.[4]

The post-myocardial infarction syndrome and the pleuropericardial syndrome that follows cardiotomy or pericardial injury, and the non-specific pericarditis syndrome are diseases that bear very close resemblance to manifestations of acute connective tissue disease and auto-immune reactions.[8] These diseases are characterized by protracted or recurrent fever, chest pains of the pleuropericardial type and a tendency to relapse. A pericardial friction rub is frequently heard and in many cases a pleural effusion can be demonstrated. Here steroids usually cause prompt suppression of symptoms.

The salt retaining effect of adrenal steroids may be expected to increase fluid stored in the interstitial and intravascular spaces an effect somewhat similar to transfusions. There would result an increase in venous return and arterial pressure. They are features found clinically in patients with adrenal cortical hyperfunction and have been amply demonstrated in animals when a salt saving steroid is used. It would therefore be expected that steroids would be harmful in patients with congestive heart failure. Paradoxically, some patients with congestive heart failure have shown the opposite effect. Instead of increasing the severity of heart failure, administration of ACTH results in salt and water diuresis, augmented responsiveness to mercurial diuretics, and an improved clinical status.[5] The mechanism for this seeming paradox is not fully understood. Steroids seem most effective in patients with refractory heart failure of long duration and in whom aldosterone activity is already maximal. It is assumed that steroids act by inhibiting the antidiuretic hormone. If it is true that aldosterone activity is maximal then besides steroids such patients should benefit from Aldactone (Searle), an aldosterone antagonist. If a decision is finally made to use steroids, then prednisolone which minimizes salt and water retention would appear to be the drug of choice.

The salt retaining effect of steroids is occasionally employed therapeutically in patients suffering from postural hypotension. In such patients owing generally to poor vasomotor activity of the adrenergic nerves to the lower extremities there is excessive loss of blood into dependent vascular beds and a greatly reduced venous return. Hickler[6] reported excellent results in controlling the symptoms in such patients with fludrocortisone. It is not clear, however, from his studies how this agent acted. Did it increase intravascular volume which then compensated for the excessive loss of blood into the dependent vascular beds when the patient assumes an upright position or did the steroid potentiate the vasomotor activity of adrenergic nerves?

In adrenal insufficiency steroids are needed to reverse the shock. Whether the insufficiency is due to primary renal failure or caused by previous suppression of the adrenal cortex from large administrations of steroids, there exists a physiologic deficit of adrenal steroids and their replacement is mandatory to reverse the shock state. In the absence of adrenal insufficiency the shock will not respond to steroids and the catechol-amines remain the drugs of choice; epinephrin in anaphylactic shock and norepinephrine in ordinary shock. To this dictum there are two exceptions (a) hypotension that is protracted and associated with hypersensitivity reactions. In such patients very favorable responses have followed the use of corticosteroids. (b) Hypotension due to endotoxic shock. In experiments on mice, rats and dogs in whom lethal amounts of endotoxin were injected to simulate conditions of bacteremic shock in man, the animals were markedly improved by treatment with steroids.[7] The necessary dose to achieve the greatest success was many times greater than that needed for optimal replacement of adrenal cortical hormones. In other words, the hormones were producing a pharmacological effect not a physiologic one. It appears their physical presence in high concentrations can protect tissues against the damaging effect of the bacterial toxin.

Knowing the physiologic and pharmacologic action of adrenal steroid hormones it is possible to derive some therapeutic principles that help in the treatment of certain cardiovascular diseases. Physiologically they are useful in shock caused by adrenal insufficiency from whatever cause. Most of the instances of successful use in cardiovascular disease are due to their pharmacologic action. As anti-inflammatory agents the steroids can be used to control:

(a) Symptoms of acute rheumatic carditis.
(b) Symptoms of the post-myocardial infarction syndrome.
(c) Post-cardiotomy syndrome.
(d) Non-specific pericarditis.
(e) Perhaps inflammatory responses associated with some cases of myocardial infarction.
(f) Shock from hypersensitivity states.
(g) Shock from bacterial toxins.

REFERENCES

1. Selye, H.: Conditioning by cortisal for the production of acute massive myocardial necrosis during neuromuscular exertion. Ciro, Res., 6: 168, 1958.
2. Phelps, M. D., Jr. and Lindsay, J. D.: Cortisone in Stokes-Adams disease secondary to myocardial infarction.
3. Johnson, H. S., Scheinberg, S. R., Gerish, R. H., and Saltzstein, H. C.: Effect of cortisone on the size of experimentally produced myocardial infarction. Circulation, 7: 224, 1953.
4. Ewen, C.: Current status of therapy in rheumatic fever. J.A.M.A., 170: 1056, 1959.
5. Riemer, A. D.: Application of the newer corticosteroids to augment diuresis in congestive heart failure. Am. J. Cardiol., 1: 488, 1958.
6. Hickler, R. B., Thompson, G. R., Fox, L. M., and Hamlin, J. T.: Successful treatment of orthostatic hypotension with nine alpha fluorohydrocortisone. N. E. Jr. Med., 261: 788, 1959.
7. Weil, M. H.: Experimental studies on the therapy of circulatory failure produced by endotoxin. J. Lab. & Clin. Med., 57: 683, 1961.
8. Dressler, W.: A post-myocardial infarction syndrome. J.A.M.A., 160: 1379, 1956.

Committee On Maternal Mortality And Morbidity

PULMONARY EMBOLISM

This 32-year-old white, Rh negative, serology negative, gravida 3, para 3 was admitted 14 days postpartum in serious condition, with the sudden onset of left-side chest pain, chills, cough, hemoptysis, cyanosis and inability to sleep except in a sitting position. Two weeks prior to her readmission she had delivered spontaneously a full term 7 pound 12 ounce female infant. She had had an uneventful postpartum course. She had been ambulated early and she and baby had been discharged in good condition on the fifth day.

Course In The Hospital

Upon readmission to the hospital the patient stated that she had had absolutely no trouble since leaving the hospital nine days prior, until the day of admission when she suddenly experienced a very sharp pain in the left chest associated with hemoptysis, cyanosis and inability to rest except in a sitting position. She was complaining of pain in the left side of her chest on breathing or coughing. Her blood pressure was 120/70; the heart sounds were normal and the admission electrocardiogram was normal. Auscultation of the lungs revealed some rales in the right apex and right base. The left lung was clear. She had no pain, swelling or tenderness in the legs, thighs or abdomen. X-ray of the chest reveals marked density obliterating the right second and third interspaces anteriorly and in the middle third, marked haziness in the lower right lung. The X-ray diagnosis was pneumonia. In addition there was a slight right pleural reaction. She was placed at absolute bed rest since pulmonary infarction was suspected clinically. Her position was changed frequently. She received intravenous fluids of 5 per cent glucose in water on admission; combiotic ampule 1 daily; achromycin 250 mg. t.i.d.; Demerol 75 mg. on admission and every 4 hours p.r.n. for pain. Fluids were urged orally and oxygen was given as needed. Her chest pain was relieved with the application of an ace bandage to the chest. Anticoagulant therapy was not used by her physician, as he felt the value of this was somewhat controversial and there was not sufficient evidence to make its use beneficial.

The patient improved daily on this regime; her chest pain and cough subsided. On the sixth hospital day she was allowed to be up in a chair, and on the seventh day she received bathroom privileges. Oral temperature on admission was 99.8° and on the third day it gradually rose to 101°, but dropped shortly to 99° the following day, remaining below 99° until the day of her demise.

On the eighth hospital day auscultation of the chest was essentially normal. X-ray of the chest revealed considerable decrease in the size of the consolidated patch in the right lung field. There was still some haziness at the right costophrenic angle. The impression of the roentgenologist was subsiding pneumonitis and pleurisy, but infarction could not be ruled out. On the ninth hospital day there were no complaints. Suddenly she called out, fell backwards in bed, her eyes rolled back, pulse could not be obtained and she was very pale. Adrenalin was given by the endocardiac route but there was no response.

Autopsy Diagnosis

Postpartum subinvolution of the uterus; thrombosis of the uterine veins; thrombosis of the right common iliac veing; massive bilatreal embolus of the pulmonary arteries; infarction of the lungs, all lobes; fibrinous pleurisy bilateral; fibrinous pleural dahesions bilateral; congestion of the lungs, liver and spleen.

Comment

1. This clinical picture seems to be classical for pulmonary embolus. No medical consultation was sought.

2. The pelvic veins are as common a site for the formation of emboli as the deep leg veins. No careful evaluation of either origin was documented.

3. A roentgen diagnosis should not be unquestionably accepted, particularly when it does not coincide with the history or clinical findings.

4. It is unusual for pulmonary infarct to become first manifested 14 days after delivery. Were there significant findings missed at the original discharge exam? Was the patient really asymptomatic uutil the day of her second admission?

5. No temperature data is given. Were lochia, sputum or blood cultures obtained?

Concensus

This patient presented a clinical picture of pulmonary emboli. There is good reason to believe that proper anti-coagulant therapy was very definitely indicated.

TIME OUT . . . *to mark this special day on your calendar*

SEPTEMBER 28, 1962

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FRIDAY, SEPTEMBER 28, 1962

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Around The State

Hezekiah Beardsley Pediatric Club

At the Spring meeting of the Hezekiah Beardsley Pediatric Club held on May 3, 1962, the following resolution was presented by Dr. Joseph Hetzel of Waterbury and passed on favorably by the club:

WHEREAS: It is the policy of the Hezekiah Beardsley Pediatric Club of Connecticut formally to recognize and show due appreciation of outstanding contributions and devotion to the promulgation of good pediatric practice by a member; and

WHEREAS: James Harold Root, Sr. a graduate of Harvard University School of Medicine, class of 1918, with further training at Boston City Hospital and the Harriet Lane Home has so conducted his professional activities and given generously of his time, interest and ability to his community and state that he is deserving of this recognition; and

WHEREAS Dr. Root has been on the staff of the Waterbury Hospital since 1920 as attending pediatrician for 20 years, as chief of staff in 1953-1954 and as chief of pediatrics in 1948-1953, and for 22 years has been a staunch ally of the Waterbury Visiting Nurses Association; and

WHEREAS: Dr. Root has served as a member of the House of Delegates, as member of the Committee of Public Health since 1936, as member of the Advisory Committee on School Health since its inception in 1952, as chairman and organizer of the Committee on Nutrition 1958, all of the Connecticut State Medical Society; and

WHEREAS: He has further given of himself as member of the Connecticut State Advisory Committee on the Maternal and Child Health Services since 1936, as member of the Advisory Committee to State Commissioners of Welfare, Finance and Control and as representative of the Connecticut State Medical Society on the State Planning Group for the Mid-Century White House Conference as well as cooperating with the Governor's Committee on Children and Youth in planning for the 1960 White House Conference; and

WHEREAS: He was an active participant in writing the original "Suggested School Health Policies" in 1941, and supervised the Study of Child Health Services in Connecticut by the Academy of Pediatrics 1946-49, and was instrumental in initiating the formation of the Connecticut Advisory School Health Council; and

WHEREAS: He is a past Chairman of the Connecticut Chapter of the American Academy of Pediatrics; there be it

RESOLVED: That the Hezekiah Beardsley Pediatric Club of Connecticut cause this resolution to be spread upon its minutes; and be it further

RESOLVED: That this resolution be printed in CONNECTICUT MEDICINE, the official publication of the Connecticut State Medical Society of which this club is the Pediatric Section.

Naugatuck Valley Medical Society

The Naugatuck Valley Medical Society carried out a communitywide program of Type I oral polio vaccination in June, under the direction of John M. Renehan, M.D., Chairman of the Society's polio clinic committee.

A fee was charged and the proceeds placed in the special Naugatuck Valley Medical Society scholarship fund. Between this Society sponsored program and the various school programs, approximately 48 per cent of the entire population, both adults and children, received the Type I Sabin vaccine. It is planned to administer Types II and III on a similar basis in the fall. It is felt, that this figure of nearly 50 per cent vaccinated of the community represents one of the highest levels yet achieved in any metropolitan area in the State of Connecticut.

Following the recent local organizational meeting of COMPAC held late in June, a poll of the membership of the Naugatuck Valley Medical Society reveals the following:

There are 51 members in the society.

Three members are away on extended vacations and cannot be contacted.

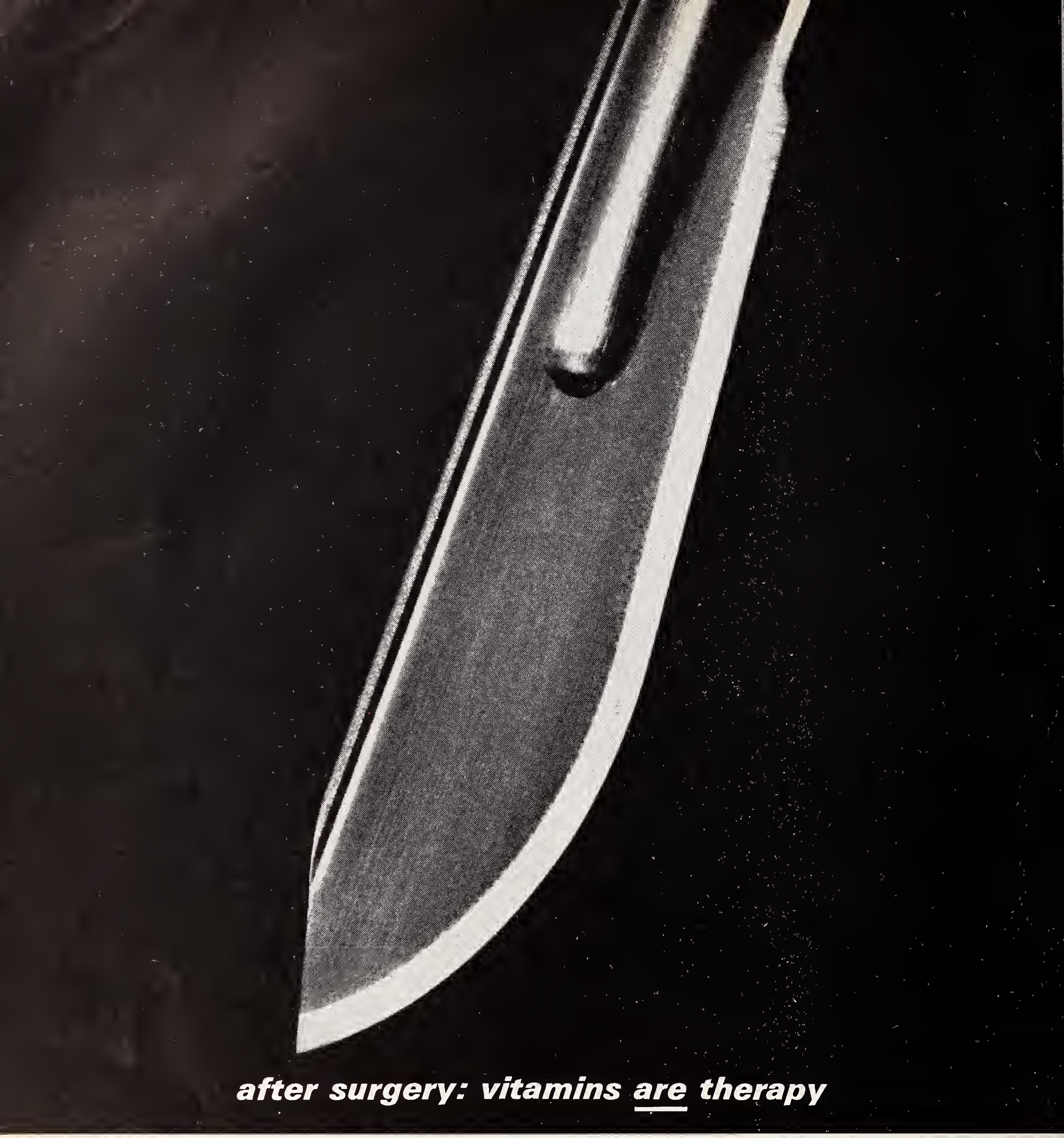
45 members have joined or applied to join COMPAC.

Two members are undecided about COMPAC.

One member has chosen not to join COMPAC.

This represents an 88 per cent actual participation rate, and when corrected for vacations represents a 94 per cent participation rate.

It is felt that this figure of enrollment represents the highest participation percentage of any local medical society in the State of Connecticut.



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Joseph Becker, M.D., announces the reopening of his office for the practice of dermatology at 302 State Street, New London.

Vincent Capodilupo, M.D., announces the opening of an office for the practice of internal medicine at 1381 Reservoir Avenue, Bridgeport.

William Cohen, M.D., announces the opening of an office for the practice of allergy at 83 Central Avenue, Waterbury.

Bart DePetrillo, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 77 Robbins Street, Waterbury.

Thomas A. Dwyer, M.D., announces the opening of an office for the general practice of medicine at Candlewood Corners, New Fairfield.

Albert Goodrich, M.D., announces the opening of a second office for the practice of surgery on Chester Road, Easton.

Mladen Hauptfeld, M.D., announces the opening of an office for the general practice of medicine at 11 York Avenue, Niantic.

Leonard Krassner, M.D., announces the opening of an office in association with Richard Shelling, M.D., and Frank Kruskay, M.D., for the practice of pediatrics at 135 Cherry Street, Milford.

Frederick C. LaBrecque, M.D., announces the removal of his office for the practice of obstetrics and gynecology from 185 Grove Street to 151 Grove Street, Waterbury.

Ronald M. Melmed, M.D., announces the opening of an office for the practice of psychiatry at 91 Strawberry Hill Avenue, Stamford.

John Paardenkooper, M.D., announces the opening of an office for the general practice of medicine at Falls Road, Moodus.

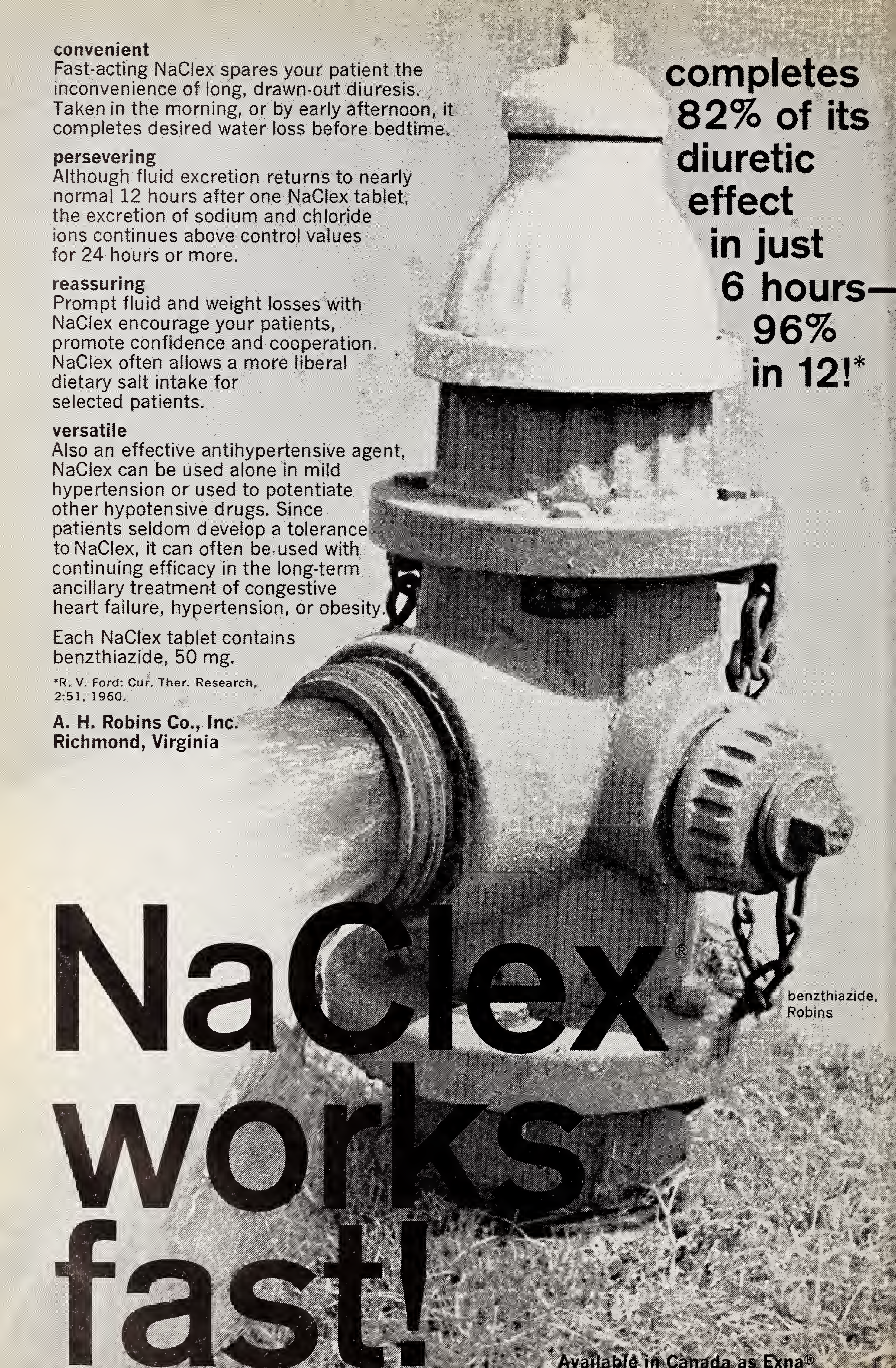
Sidney Richman, M.D., announces the opening of an office in association with Norman Mann, M.D. and Mark Josel, M.D., for the practice of internal medicine at 915 Asylum Avenue, Hartford.

Eugene S. Rotatori, M.D., announces the opening of an office for the practice of internal medicine at 297 Farmington Avenue, Hartford.

John J. Stavola, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 140 Retreat Avenue, Hartford.

Thomas E. Walshe, M.D., announces the opening of an office for the general practice of medicine at 769 Wolcott Road, Wolcott.

Joseph A. Welna, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 73 Cedar Street, New Britain.



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NEW BOOKS IN REVIEW

A TEXTBOOK OF OBSTETRICS by Duncan E. Reid, M.D. W. B. Saunders Company, Philadelphia and London, 1962, 1087 pp., $18.50.

Reviewed by: ORVAN W. HESS

The author of this textbook is widely know as a distinguished professor of obstetrics, researcher and writer. With his special capacity for selection of the important from the overwhelming mass of information which has accumulated in the dynamic field of obstetrics, he has produced an authoritative, concise treatise of current knowledge. It is an objective of the author to relate the process of human reproduction to the general framework of medicine and biology. In consonance with the general trend, interdisciplinary relationships have been emphasized particularly in areas of fetal psysiology, development and function of the placenta, and genetics. In the presentation of principles underlying patient management, the chapters directing attention to the interaction of medical and surgical diseases in pregnancy are especially notable. Based on the vast personal experience of the author, working in close association with others having special interests, these chapters reflect a school of thought and advice which is invaluable to those charged with the responsibilities of patient care. The chapter dealing with coagulation defects, a field in which the author has made fundamental contributions, is to be especially noted. The importance of obstetrical records is stressed and examples of proposed standardized forms are included. The chapter devoted to the examination and care of the neonate is thorough and beneficial in respect to both evaluation and treatment. The author has handled admirably the delicate problem of references. These, along with a list of suggested reading, will provide the researcher with abundant background material.

This excellent book is essential for the student. Its usefulness extends not only to the obstetrician but to many others in related disciplines, and to the researcher.

THE ART OF THINKING, by Dagobert D. Runes, Ph.D. Published by Philosophical Library, Inc., 15 East 40th Street, New York, N. Y., 1961, 90 pp. $2.75.

Reviewed by: DENIS S. O'CONNOR

The development of the logical thinking process in our children is one of the shortcomings of our educational system and even if we were disciplined to an independent and a coldly logical process we would still, because of the determining factors which color our thinking, reach erroneous conclusions. It is the consideration of these determining factors contained in this small, ninety-page pocket book, which should awaken one to the need for tolerance of other viewpoints involving as they do the cultural, religious, racial, traditional and environmental background of the individual.

Assuming complete objectivity, the thinking process is still subject to coloration of the individual's development.

It, therefore, behooves us to analyze our own thinking to see if we are not dominated by factors foreign to logic and to view the conclusions of others with charity in recognition of the same determining factors.

This book, little as it is, is of great importance for anyone who desires to be basically honest in his own thinking and who would try to understand the thinking of those with whom he disagrees.

CHAPTERS IN AMERICAN OBSTETRICS by Herbert Thoms, M.D., Professor Emeritus, Obstetrics and Gynecology, Curator, Yale Medical Memorabilia, Yale University. Springfield, Illinoois, Charles C. Thomas, 1933 and 1961, 2nd Edition, 158 pages, $4.50.

Reviewed by: STANLEY B. WELD

Although some of these seventeen chapters have appeared elsewhere on previous occasions, this volume represents a collection of short biographical gems which are delightful reading. In addition, it affords another valuable reference source for the medical historian. Dr. Thoms' fluid style siezes and maintains one's interest in these leaders of early American obstetrics. His character sketches are striking, his descriptions vivid and realistic. Interwoven are many interesting related details which afford proof, if such were needed, of the author's extensive knowledge, not alone of the science and art of obstetrics, but also of the times in which his chosen characters lived and practised.

Charles C. Thomas, the publishers, pride themselves that "careful attention is given to all details of manufacturing and design." This volume is beautifully printed and bound, possesses excellent illustrations and a very readable type. It is a sad reflection on the publisher that such a large number of typographical errors are found between the covers, but such is the case. Carelessness seems to be the custom in newspaper printing today but there is no place for such in a high grade product such as this book of Dr. Thoms.

THE ACTION OF INSULIN ON CELLS by M. E. Krahl, published by Academic Press, New York and London, 1961, 202 pp., $7.50.

Reviewed by: ORA K. SMITH

Those interested in diabetes will welcome this thoughtful book on the mechanism of action of insulin. In spite of the growing number of good reviews and books on the subject, this type of book by a single author provides much information and reference material unified by interpretation and speculation. Studies involving man, whole animals or parts of animals are summarized, but the author's main emphasis is, of course, on the *in vitro* experiments with which he, himself, has been concerned. There are individual chapters on the insulin effect in various tissues, in cell free systems, and one on the structure of insulin. Of particular interest is the author's critical appraisal of the many contradictory experiments concerning insulin and the liver. There is an author and subject index as well as complete bibliographies. The style is clear and organization so thorough that repetition is necessary—but this should annoy only the most sophisticated readers. Some will not entirely agree with Krahl's emphasis, for, in order to evolve a unified theory of insulin action it is necessary to chose some experiments at the expense of others. This has been honestly done, though, understandably, the author's prejudices are ever in full view. While throughout the book he suggests new avenues for research and cleverly devised a scheme for the action of insulin which explains many observed phenomena, his conclusion leaves one in doubt as to whether the study of individual tissues will lead to a solution of the problem of insulin action. He concludes: "The mechanism of hormone action has thus become a problem of solid state physics.'

This volume should be of interest not only to those engaged in research but also those in the practice of medicine who are desirous of keeping abreast of the rapid developments in our understanding of the mechanisms underlying the action of hormones.

TEXTBOOK OF MEDICAL PHYSIOLOGY. Second Edition by Arthur C. Guyton, M.D. W. B. Saunders Co., Philadelphia, Pennsylvania, 1961, 1153 pp.

Reviewed by: LOUIS H. NAHUM

This is the second edition of a book first published in 1956, that was widely accepted by teachers and students but which had some need to clarify the presentation of some of the material. This is not difficult to appreciate when one considers that the author has alone produced this monumental work which in other textbooks is achieved through contributions of multiple authors. For graduate students perhaps textbooks of multiple authorship may be desirable, but such texts generally suffer from various styles of presentation and a lack of a unified philosophy of teaching the subject.

The philosophy which shines through every chapter is a wholesome one. The human body is presented as a single functioning organism controlled by a large number of regulatory systems in which the automaticity of the life processes is emphasized again and again. The principles of control are discussed in every chapter as they apply to specific bodily mechanisms. The interrelationship of the functions of the different organ systems is emphasized, so that description gives way to principles of function from which the activity of individual units is derived.

How does one author succeed in covering such a vast field as physiology and do it with such accuracy, enthusiasm and success? The answer must be multiple. First and foremost the author must have been in close contact with his students, gained insight from their difficulties and perplexities. Second, he must have realized that basic principles survive whereas detail and factual material changes. As a result we find emphasis on interrelationships and the functional, rather than being satisfied with the descriptive aspects. Finally, he must have labored hard and long and drawn from the knowledge and experience of many physiologists everywhere, for although some sections are abbreviated and others expanded, the subject matter has not suffered.

The orientation towards the students problems which we find in this excellent text can be seen in the nature of the references chosen for the coverage of the specific subjects, their up-to-dateness and for their own bibliographies a student referring to them can cover almost any phase of physiology.

The book is excellently printed in a two column per page arrangement with the liberal use of large and smaller boldface making it elegant, and easy to read.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Surgeon desires association presently Chief resident surgeon University Hospital. Available after July 1st.

Vincent J. Moriarty, age 33—M.D., New York State University College 1954. Specialty Orthopaedics.

Herbert Kaplan, age 32—M.D., Albany Medical College 1955. Specialty Internal Medicine.

PLACEMENT OPPORTUNITIES
WANTED

Pathologist for hospital in New Haven County.

Obstetrician-Gynecologist (woman) to take over practice in Fairfield County.

Two full-time resident physicians for hospital in Fairfield County.

General practitioner in Litchfield County.

General practitioner in Fairfield County.

Veterans Administration in San Francisco, Calif., have several vacancies for staff psychiatrists.

Medical Education Director wanted for 189-bed hospital. Other professional activity within the hospital essential. Board certified pathologist or cardiologist preferred. Salary open. Reply to Secretary of Medical Education Committee, Mount Sinai Hospital, 500 Blue Hills Avenue, Hartford 12, Connecticut.

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OBITUARIES

LeRoy Charles Grau, M.D.

1880 - 1962

Dr. LeRoy Charles Grau died at the Hartford Hospital February 24, 1962, after a prolonged illness with pulmonary emphysema, bronchiectasis, and recurrent bouts of pneumonitis, terminating with acute lobar pneumonia. He was 81 years old and had remained remarkably active despite many accumulating physical infirmities until a fall and resulting hip injury a few weeks prior to his death confined him to bed.

Dr. Grau was born December 19, 1880, in Hoosick Falls, New York. He attended Williston Academy, Dartmouth College and Dartmouth College Medical School. He received his medical degree in 1912. After an internship at Bellevue Hospital in New York City and further training at the Hospital for Ruptured and Crippled Children in West Haverstraw, New York, he joined the staff of the New York State Psychiatric Institute.

In 1919 he came to Hartford with the Travelers Insurance Company, from which he retired in March, 1949, as Associate Medical Director.

After his retirement he assumed a leading role in the Williston Academy Alumni Club of Hartford and from 1951 until shortly before his death he worked with enthusiasm with the mobile units of the Connecticut Regional Blood Program. He was much beloved by the nurses and many volunteer workers associated with the Bloodmobile.

Dr. Grau was a faithful member of the Trinity Episcopal Church of Hartford, where he taught Sunday School for many years. His love of beauty and the quiet life led him to spend many pleasurable hours in his flower and vegetable gardens. His flower garden was enjoyed and admired by many friends and neighbors. He was a member of the American Rose Society.

As his physical powers declined his mind remained keen and he continued to follow the progress of clinical medicine with unabating interest. He read the Journal of the A.M.A. and CONNECTICUT MEDICINE regularly.

He followed his own failing health with courage and almost clinical objectivity. His sense of humor never failed him and was a source of strength to his physician as well. This courage, this sense of perspective, the love of beauty, and the doctor's unproclaimed generosity toward his fellow man are the enduring qualities which mark this exceptional man —this physician.

Dr. Grau is survived by his wife, Mrs. Emma Baumann Grau of Hartford, his daughter, Mrs. James G. McLain of West Hartford, and three grandchildren.

CLAIR RANKIN, M.D.

Thomas B. Murphy, M.D.

1897 - 1962

On May 27, 1962, Thomas B. Murphy, M.D., physician and friend to the people of Wallingford, died at his home, the victim of a coronary occlusion and complications following a long illness.

His death brings to a close a varied and fruitful medical career in the service of his country as well as his community. A veteran of both World Wars, Dr. Murphy served in the Philippines as a Lieutenant Commander in the United States Navy. He was on the surgical staff of the Meriden Hospital and he is fondly remembered by many generations of Wallingford children as the School Medical Director.

Dr. Murphy was a graduate of Harvard University and the Harvard Medical School, Class of 1923. He was a member of the American College of Surgeons, the Connecticut State Medical Society, the New Haven County Medical Association and the Massachusetts Medical Society.

Dr. Murphy is survived by his widow, Mrs. Margaret L. Fitzgerald Murphy; two children, a daughter, Mrs. James Connor, and a son, Thomas, Jr., and one grandchild.

KURT S. PELZ, M.D.

In Memoriam

Hart, Carl J.—New Britain; Hahnemann Medical College, Philadelphia, 1903; practicing physician in New Britain for 48 years; retired eight years ago from one of the largest practices during his medical career; member of the Centennial Lodge, AF & AM and was a 50-year member of that organization; died June 17 at the age of 82.

Stygar, Joseph S.—Derby; St. Louis University School of Medicine, 1933; practiced medicine in Derby for 28 years; city health director in Derby and a member of the active medical staff at Griffin Hospital; he was a lieutenant commander in the Navy during World War II; Dr. Stygar was a well-known doctor of true dedication to his profession and patients; he received a citation of merit in 1952 from the Fraternal Order of Eagles for risking his own life to aid an ailing person and this was only one incident, for there were many more; death came to Dr. Stygar on July 4 at the age of 54.

Westneat, Frances Whitney — Hamden; New York University Medical School, 1948; pediatrician in Hamden; served in the medical corps during World War II in the Navy; was associated with the Yale University Department of Health and on the staffs of both Grace-New Haven and St. Raphael's Hospitals as well as on the clinical staffs of the Hamden Visiting Nurse Association and the New Haven Department of Health; he was a member of the Hezekiah Beardsley Pediatric Society; died June 20, after a long illness at the age of 38.

Special Notices

POSTGRADUATE GASTROENTEROLOGY

The annual course in Postgraduate Gastroenterology of the American College of Gastroenterology will be given at the Morrison Hotel in Chicago, Illinois, November 1, 2, 3 of 1962.

The college is most happy to announce that after a three year absence the moderators for the course will again be Dr. Owen H. Wangensteen, Chairman and Head of the Department of Surgery of the University of Minnesota School of Medicine and Dr. I. Snapper, Director of Medical Education, Beth-El Hospital, Brooklyn, N. Y.

The faculty for the course will be drawn from the Medical Schools in and around Chicago. The subject matter to be covered, from the medical as well as the surgical viewpoint, will be essentially, the diagnosis and treatment of gastrointestinal diseases and comprehensive discussions of diseases of the mouth, esophagus, stomach, pancreas, spleen, liver and gallbladder, colon and rectum. A Clinical session will be held at the Cook County Hospital in addition to the several individual papers to be presented.

For further information and enrollment write to the American College of Gastroenterology, 33 West 60th Street, New York 23, N. Y.

8TH HAHNEMANN SYMPOSIUM

Title: Medical Considerations in the Surgical Patient.

Sponsored by Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia 2, Pa.

Date of Meeting: December 12 to 14, 1962.

Location of Meeting: Sheraton Hotel, 1725 Pennsylvania Boulevard, Philadelphia 3, Pa.

Purpose: To consider the major medical problems which the physician encounters in the surgical patient. The program is divided into the following subsections:

1. Evaluation and preparation of patients with difficult cardiovascular problems requiring surgery.
2. Therapy of cardiovascular-pulmonary problems in the postoperative period. Special emphasis on fluid and electrolyte problems, cardiac surgery problems and the diagnosis and management of shock.
3. The evaluation of endocrine problems in the pre-and postoperative period.
4. Evaluation and management of gastrointestinal disorders in the pre- and postoperative period.

For further information contact: Wilbur W. Oaks, M.D., Director, Hahnemann Medical College and Hospital, 230 North Broad Street, Philadelphia 2, Pennsylvania.

NEW ENGLAND POSTGRADUATE ASSEMBLY

Statler Hilton, Boston
November 6, 7, 8, 1962

Program Committee Chairman: Robert F. Bradley, M.D., Boston

Executive Officer: Mr. Getty Page, Secretary-Treasurer, Council of the New England State Medical Societies, 128 Merchants Row, Rutland, Vt.

General Chairman: Linus J. Stitham, M.D., Dover-Foxcraft, Maine

Sponsored by the Council of the New England State Medical Societies in cooperation with the New England State Chapters of the American Academy of General Practice.

Woman's Auxiliary

To The Connecticut State Medical Society

National Convention News

Mrs. Morton Arnold of Windham Center is now Eastern Regional Vice President of the Woman's Auxiliary to the American Medical Association. Mrs. Arnold, past president of the State Auxiliary, was elected to her new position at the recent Convention of the National Auxiliary in Chicago, Illinois.

Connecticut was represented at the Convention by Mrs. Norman H. Gardner of East Hampton as presidential delegate; Mrs. F. Erwin Tracy, Middletown, Mrs. Morton Arnold, Mrs. Vincent A. Gorman, Bridgeport, and Mrs. Ellwood C. Weise, Stratford, as delegates; and Mrs. William R. Richards of Hamden as alternate. Mrs. Gardner served on the Elections Committee for this convention.

Mrs. Paul W. Tisher of New Britain has been reappointed Eastern Regional Chairman of the National Committee for Bulletin circulation.

"Aim for Excellence in Achievements" is the theme selected by Mrs. William G. Thuss, President of the National Auxiliary for this 1962-1963 year.

SIGIL. SOCIET. MEDICAL. REIPUBL. CONNECT.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26, SEPTEMBER, 1962, NUMBER 9

Gilbert W. Heublein and Harry H. Browne **Further Evaluation Of Severe Upper G.I. Tract Bleeding From The Roentgen Standpoint**

Andrew F. Turano **Hypoproteinemia And Edema With Occult Blood In The Stools**

Peter B. Hukill **The Role Of Biopsy In The Diagnosis Of Skin Disorders**

Timothy A. Lamphier and Ronald I. Goldberg **Low Back Pain And Allied Disorders Treated With Phenyramidol**

Sherwood Goffin **The Ileostomy Associations—"For Those Who Need"**

In This Issue **Program—Thirty-Seventh Connecticut Clinical Congress**

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REFERENCES: (1) Roseman, E.: *Neurology* **11**:912, 1961. (2) Bray, P. F.: *Pediatrics* **23**:151, 1959. (3) Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120. (4) Crawley, J. W.: *M. Clin. North America* **42**:317, 1958. (5) Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield,. Ill., Charles C Thomas, 1954, p. 190. (6) *Ibid.*: *Postgrad. Med.* **20**:584, 1956. (7) Merritt, H. H.: *Brit. M. J.* **1**:666, 1958. (8) Carter, C. H.: *Arch. Neurol. & Psychiat.* **79**:136, 1958. (9) Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, pp. 37-48. (10) Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1955, p. 187.

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Connecticut Medicine

SEPTEMBER
1962

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VOLUME 26, NO. 9

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1. Ford, R. A., and Blanchard, K: Journal-Lancet 78:185, 1958.

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Further Evaluation Of Severe Upper G.I. Tract Bleeding From The Roentgen Standpoint

Hartford Hospital Experience 1959-1960

GILBERT W. HEUBLEIN, M.D.
HARRY H. BROWNE, M.D.
Hartford

CHRONIC peptic ulcer is a major problem of present-day living, not only insofar as morbidity to the patient is concerned, but also from the purely economic standpoint. As life expectancy increases, so do our geriatric problems. Thus, with aging arteries, some hazard to human life by hemorrhage from the upper gastrointestinal tract becomes an inevitable consideration. Brisk bleeding in the sixth and seventh decades of life is a serious complication. On the basis of our past three years[3] experience in the Hartford Hospital, this complication can be expected in approximately one of five cases admitted with serious bleeding. As years pass, this percentage should undoubtedly increase.

Regarding the clinical evolution of ulcer, it is common experience among radiologists to be called upon to examine patients with typical ulcer symptoms only to find after meticulous examination by film and fluoroscopy that there is no ulcerative disease present. By contrast, in numerous cases and to the dismay of the referring physician, the radiologist may find a niche or fleck defect sometime after the patient's symptoms have disappeared. It is well to bear in mind that in the development of ulceration of the gastroduodenal mucosa a hyperfunction-hypersecretion syndrome precedes the phase of frank ulceration. This, of course, is nothing more or less than the well-known manifestation of living tissue responding to a noxious stimulus (Spira). The mucosa of the stomach reacting to this stimulus becomes thickened and reddened; there is hypersecretion, increased tonus and hypermotility due to an increased gastrointestinal gradient. Ulceration then occurs with characteristic signs and symptoms, and then, finally, as healing supervenes, symptoms gradually abate with healing of the gastritis, but with, often as not, residual x-ray signs. The course of events herein described has been particularly well documented by Spira[6] in his excellent monograph. Obviously, whether the patient is bleeding or not, it is not incumbent upon the radiologist to find ulceration where none is present, nor should the tyro-physician insist on the demonstration of an ulcer by x-ray means in a patient with a hyperfunctional derangement such as alcoholic gastritis, and "Macy's" or "Pratt and Whitney" stomach simply because there is a history of bleeding or symptoms "characteristic of ulcer."

It is well known that peptic ulcer, gastritis and esophageal varix account for approximately 80 to 85 per cent of all gross bleeding of the upper gastrointestinal tract. A few basic principles should be mentioned:

1) The vascular supply of the stomach and duodenum is extensive; any erosion of a sizable vessel, particularly if arteriosclerotic or the site of local inflammatory disease, may give rise to serious bleeding.

2) The size of the lumen of the eroded vessel, its elasticity and contractility, as well as the blood pressure carried within it will play an important part in determining the fate of the patient under consideration.

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3) As outlined by roentgen study, the site of bleeding is important from a prognostic standpoint. The higher on the lesser curvature of the stomach or the lower on the posterior surface of the duodenum, the more serious the hemorrhage is likely to be. Thus proximal and distal ulcers acquire a special significance for the radiologist managing the case. Even patients who are nearly moribund may be saved by surgery-for-cure, if there is a demonstrable high gastric ulcer.

4) Gastric ulcer carries a mortality rate twice that of duodenal ulcer (that for gastric ulcer being approximately 20 per cent, as compared with 10 per cent for duodenal ulcer).

5) The rate of bleeding, that is, the quality of bleeding, is more important than the hematocrit, the photohemoglobin level and the total blood count at any one time.[2] The critical need for 3-5 units (1500-2500 cc.) of whole blood to restore the hemoglobin to normal, suggests a surgical emergency and the urgent need of laparotomy.

6) Finsterer's[1] 48-hour dictum for surgery may be applied to roentgen study. The earlier the examination, the more informative this will be; provided the patient is conscious enough to swallow and is stabilized as to his blood volume (Templeton),[7] there is no contraindication to early roentgen study. There are few surgeons who feel that roentgen examination is without value; endoscopy, which is usually favored first by skeptics, should be actually employed as a supportive follow-up examination, usually after obtaining a positive bromsulfalein test.

7) Approximately eight of ten patients with bleeding will have an upper gastrointestinal series ordered by the referring physician. Approximately two of ten will bleed massively and require surgical consultation without delay. A similar number (2/10) will continue to ooze for several weeks and require interval surgery, which normally carries a mortality rate of three per cent or less.

8) The accuracy of roentgen examination by the Hampton non-palpatory technique or other similar roentgen method is high, on the order of 80 to 90 per cent.[4] In an actively bleeding case, deformity of the duodenal bulb in the absence of other positive roentgen signs should not be disregarded. It probably points to the source of hemorrhage.

9) In a small percentage of cases (6-9 per cent) no point of bleeding will be discovered. The cause of such hemorrhage in a few instances will ultimately prove to be a small undisclosed, submucosal, leaking aneurysm. The advisability of carefully scanning flat films of the abdomen for ring shadows in the region of the gastric shadow is, therefore, obvious.

Hartford Hospital Experience 1959.

Our experience in massive upper gastrointestinal bleeding at the Hartford Hospital from January 1 through December 31, 1959, has been reviewed. As in the previous two-year study we were chiefly concerned with evaluation of the accuracy of roentgen diagnosis, mortality rates, bleeding sites, and incidence of recurrent bleeding following surgery. As such, this represents a continuation of the 1957-1958 study reported elsewhere.[3]

In 1959 there were 83 admissions with acute upper gastrointestinal bleeding which were divided into categories 1—, 2—, and 3+, applying criteria similar to those previously used.[3] Twenty-six of the patients admitted had minimal or 1—+ bleeding, and, therefore, were discarded from our study at the outset.

Accordingly we are concerned with the remaining 57 cases of more advanced bleeding that were classified as 2— or 3—+. (See Table I). Of the 57 patients in this latter group 14 or 24.5 per cent required definitive surgery. There were two additional patients who developed gastrointestinal bleeding following operative procedure on other portions of the body. These will be considered in the surgical series though not in the group requiring definitive laparotomy for gastroduodenal ulceration.

Surgical Management

Patients managed by surgery	16
Two plus bleeding	6
Three plus bleeding	10
G.I. studies done	7
Previous G.I. series	5
No upper G.I. series	4
X-ray findings confirmed at surgery	11

Of 16 patients with surgical bleeding, 2 were secondary to surgery other than for ulcer. One of these died from massive gastrointestinal bleeding following a craniotomy for a brain tumor; another from gastrointestinal hemorrhage subsequent to a Whipple procedure for carcinoma of the ampulla of Vater. Neither of these two patients underwent definitive surgery for gastrointestinal bleeding per se nor did they have barium studies of the intestinal tract.

Of the remaining 14, 7 had benefit of upper gastrointestinal study immediately preoperatively, and in 6 of these the roentgen findings were confirmed at operation. Of the remaining 7 patients, 5 had previous gastrointestinal studies. All 5 of these cases revealed either an ulcer deformity or evidence of a previous subtotal resection. At operation the source of bleeding was demonstrated in the area described in the previous gastrointestinal examination or at the site of a marginal ulceration.

Thus there are 2 remaining patients who were explored without benefit of roentgen study. In one, the diagnosis of esophageal varices was made by Blakemoore tube and an emergency porto-caval shunt was accomplished. The other case of massive bleeding which came to surgery without prior roentgen diagnosis is of interest: The patient with massive hematemesis was admitted with a hematocrit of 25 but not in clinical shock. The hematemesis ceased and the patient was promptly taken to the operating room without other diagnostic tests. Abdominal incision demonstrated ascites. Gastrotomy revealed the stomach filled with blood clots but without evidence of a gastric bleeding point. However, blood was noted coming from esophageal varices so a Blakemoore tube was inserted. Postoperatively, the course was retrogressive. The patient failed to regain consciousness and died six days postoperatively.

The high correlation between the positive gastrointestinal findings and those disclosed at surgery in this particular year was encouraging. Six of seven patients having gastrointestinal examinations just prior to surgery revealed lesions in the area so designated by the radiologist. Similarly, patients who had previously had upper gastrointestinal studies showed accurate placement of the lesions by roentgen diagnosis. In this regard, our findings may be especially fortunate, since, of course, it is quite conceivable for a new bleeding point to develop elsewhere in the interim between the former gastrointestinal examination and the patient's subsequent admission to the hospital for hemorrhage. It is worthwhile noting that the patient subjected to surgery without benefit of roentgen diagnosis was apparently not benefited by laparotomy. No lesion was disclosed.

Recurrent Bleeding Following Surgery

In the entire series of 57 patients it was found that 11 cases had evidence of recurrent bleeding subsequent to surgical procedure for either peptic ulcer, tumor, perforation or obstruction. The operative procedures were as follows:

Subtotal gastrectomy	9
Gastrojejunostomy	1
Porto-caval shunt	1
Total	11

In all, 19 per cent of the patients showed evidence of recurrent bleeding following previous definitive surgical procedure.*

Surgical Mortality

Of 16 surgical patients, 5 died. Two of the 5, as previously discussed, were secondary to other surgery, namely, craniotomy and Whipple's procedure. A third patient died from a postoperative pulmonary embolus, a fourth from multiple complications following operation with hematoma and fistula formation; and a fifth following exploratory laparatomy at which time esophageal varices were unexpectedly discovered.

There were 39 medical patients with massive upper gastrointestinal bleeding during 1959. These comprise 68 per cent of the group.

Medical Management

Patients managed medically	39
Two plus bleeding	34
Three plus bleeding	5
Gastrointestinal series done	34
Gastrointestinal series not done	5
No diagnosis by gastrointestinal series	9

Eighty-seven per cent of patients admitted to the medical service had upper gastrointestinal study done for either 2– or 3–plus bleeding. Of the 34 patients studied 25 showed evidence of a bleeding site. There were 9 patients (26 per cent) of the group examined in whom gastrointestinal study failed to demonstrate any evidence of a source of a hemorrhage even in retrospect. One-third of the latter group were studied for evidence of bleeding following a previous subtotal gastrectomy, and it is a distinct possibility that in each of these cases a small undisclosed marginal ulcer was the responsible etiologic agent.

Medical Deaths

The mortality rate of those patients managed medically numbered 6 or 15.3 per cent. Three of the patients died from esophageal varices secondary to portal hypertension. Of the 3 remaining patients, two died from gastrointestinal bleeding associated with their known metastatic malignant lesions. The sixth patient who died was an asthmatic on steroid therapy, who died shortly after admission to the emergency room with massive bleeding, shock and exsanguination. A necropsy demonstrated an acute peptic esophagogastritis. It may well be that his bleeding was secondary to steroid therapy.

The last group of patients were those managed by radiation therapy. In both cases upper gastrointestinal bleeding was due to a carcinoma of the esophagus which was treated by cobalt-60 radiation. One patient died 3½ weeks following his cobalt radiation because of exsanguinating hemorrhage from the aorta into the gastrointestinal tract at the level of the cancer. The other patient is presently living with disease but no evidence of bleeding at this time.

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* This is not to indicate the percentage of gastrointestinal bleeding following subtotal gastrectomy at the Hartford Hospital, since all cases of subtotal gastrectomy have not been evaluated to date. Our experience suggests this is probably 5 per cent or less.

The following cases have been chosen from our files to exemplify some of the problems which may occur in bleeding from the upper gastrointestinal tract.

Case 1.—E.F.

A 57 year old white female was admitted to the Hartford Hospital in February 1959 with a history of melena of five days duration. The hematocrit on admission was 30, the bromsulfalein was 70 per cent and the cholinestarase level was 45 units (normal 150-200). She was a known severe alcoholic of many years duration. An upper gastrointestinal series was negative for evidence of varices and ulcerative disease of the gastroduodenum. No evidence of a bleeding point was demonstrated and she was treated conservatively on medical therapy. There was no history of hematemesis, but she gradually developed severe jaundice, became comatose and died. Post-mortem examination demonstrated esophageal varices associated with a cirrhotic liver and abdominal ascites.

This is an excellent example of the failure of upper gastrointestinal study to show the presence of esophageal varices. This is not infrequent in patients with falling blood pressure, and we believe in this type of lesion one can expect only 75 per cent accuracy. (Fig. 1 and 2).

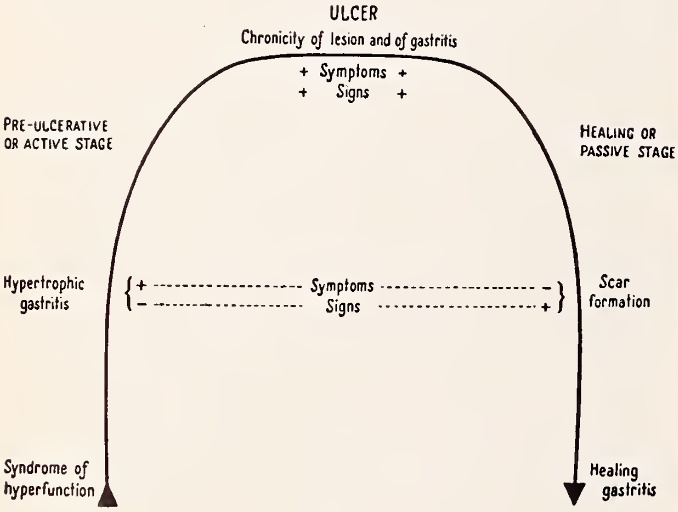

Figure I

Spira's concept showing relationship of hypertrophic gastritis to ulcer and healing gastritis. Note how symptoms and signs vary with the stage of the disease. Courtesy—J. Jacques Spira, M.D., "Gastroduodenal Ulcer," Butterworth and Co. (Publishers) Ltd. 1956, pp. 253.

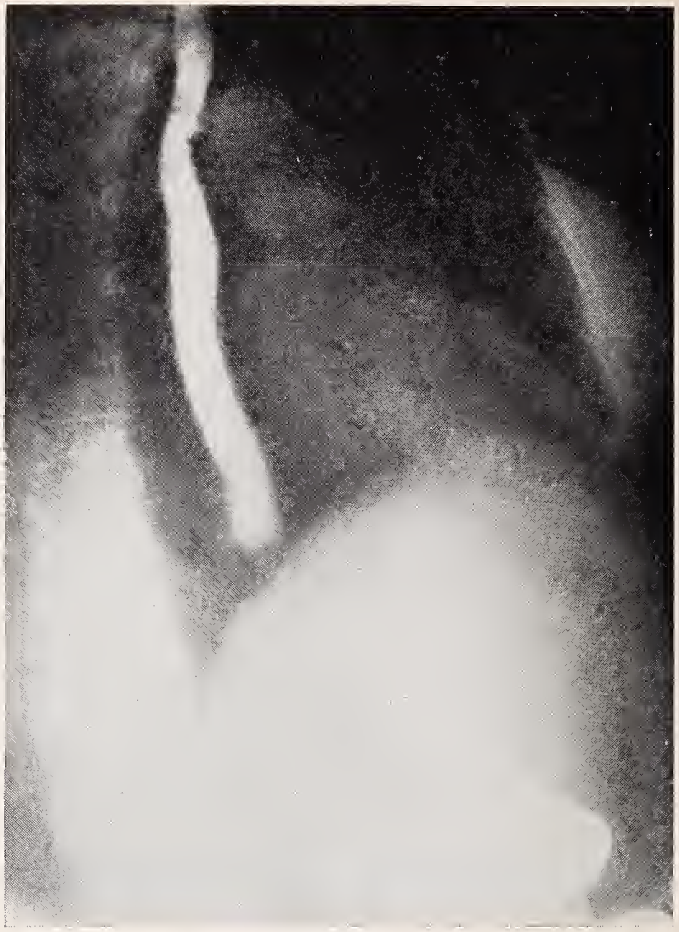

Figure II

(Case 1. E.F.) Negative swallowing function in severe alcoholic with proven cirrhosis, ascites, and varices by post-mortem examination.

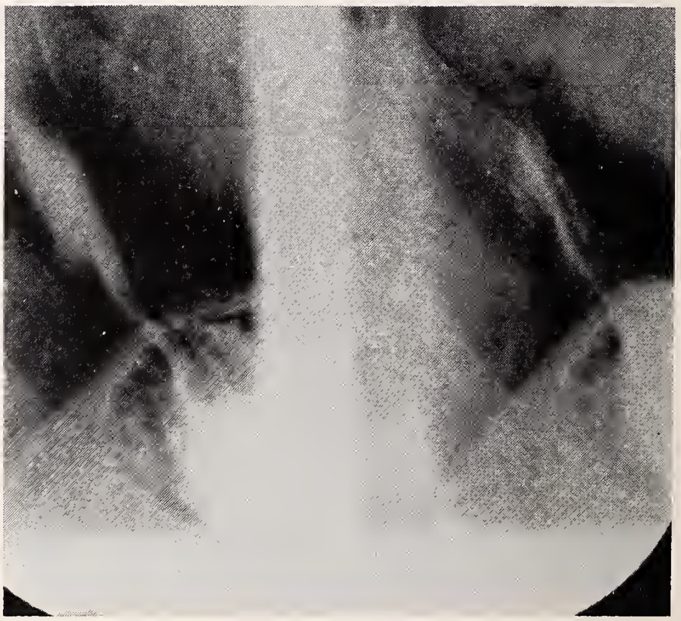

Figure III

(Case 1. E.F.) Spot films of esophagogastric junction showing normal appearance of mucosa without varices. Pt's course was retrogressive under conservative medical management.

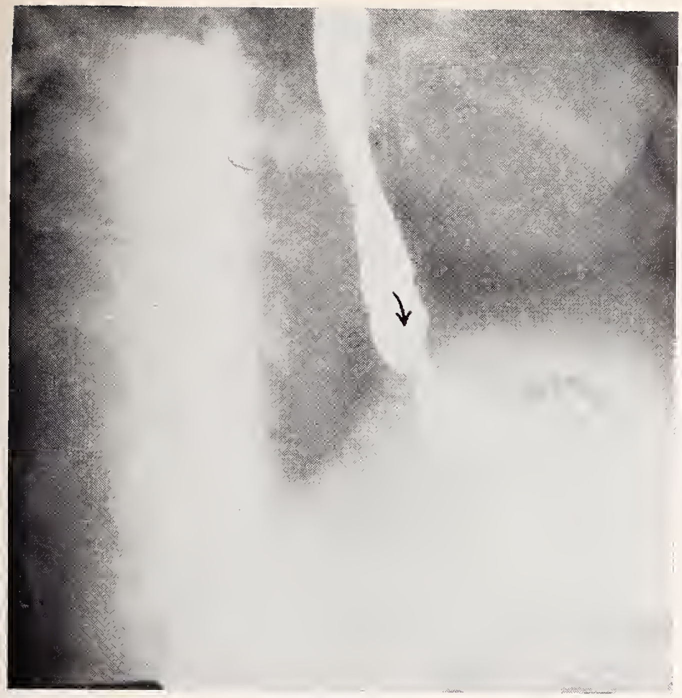

Figure IV

(Case 2. E.T.) A 59-yr. old female with known cirrhosis. Admission hematocrit was 25, requiring 4 units of blood. Lineal defect in distal esophagus thought to represent varix.

Case 2.—E.T.

A 59 year old white female with known cirrhosis of the liver, secondary to alcoholism, was admitted for upper gastrointestinal bleeding. The hemorrhage was never severe enough to require intubation with a Blakemoore tube. The admission hematocrit was 25 and she required 4 units of blood. Her course in the hospital was gradually retrogressive with evidence of exceedingly poor liver function tests. She lapsed into a coma a week before her death. A post-mortem examination demonstrated cirrhosis of the liver, ascites, jaundice, and esophageal varices. In this case, small lineal defects are demonstrated in the distal esophagus representing varices which might be easily overlooked.

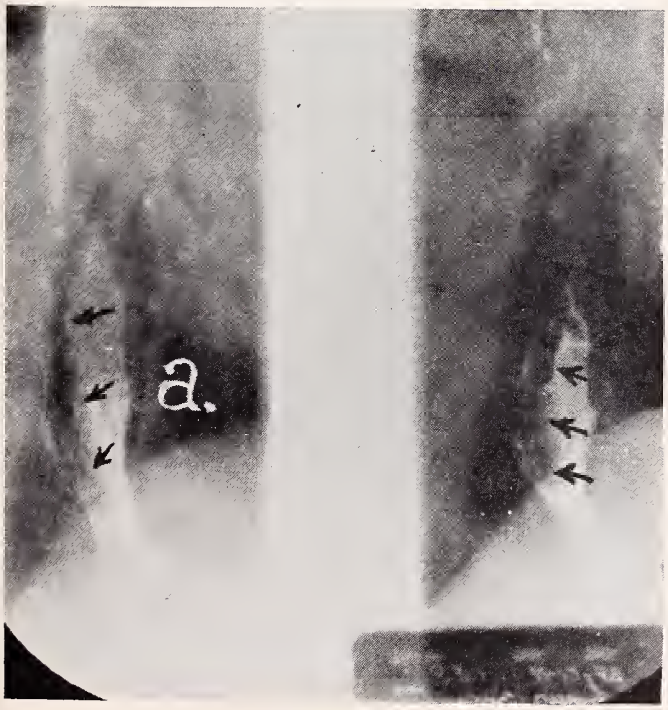

Figure V

(Case 2. E.T.) Spot film of distal esophagus showing varices at "a." Same case as Fig. 4. Flash film technique is somewhat more convincing than the routine bucky study.

Case 3.—J.F.

A 62 year old white female was admitted to the hospital in March 1959. Her symptoms began just before Christmas. There was marked dyspepsia, partially relieved by the use of "Tums." She was hospitalized in February for a diagnostic workup at which time a gastrointestinal study demonstrated pyloroduodenal obstruction and the patient was discharged on an ulcer regime. There was no bleeding on the first admission. Ten days prior to her second admission in March she had melena occurring every day and on the day before admission developed a severe syncopal attack. Admission hematocrit was 26 requiring blood replacement. She was taken to the operating room where an adenocarcinoma of the antral portion of the stomach was found and resected. The patient made an

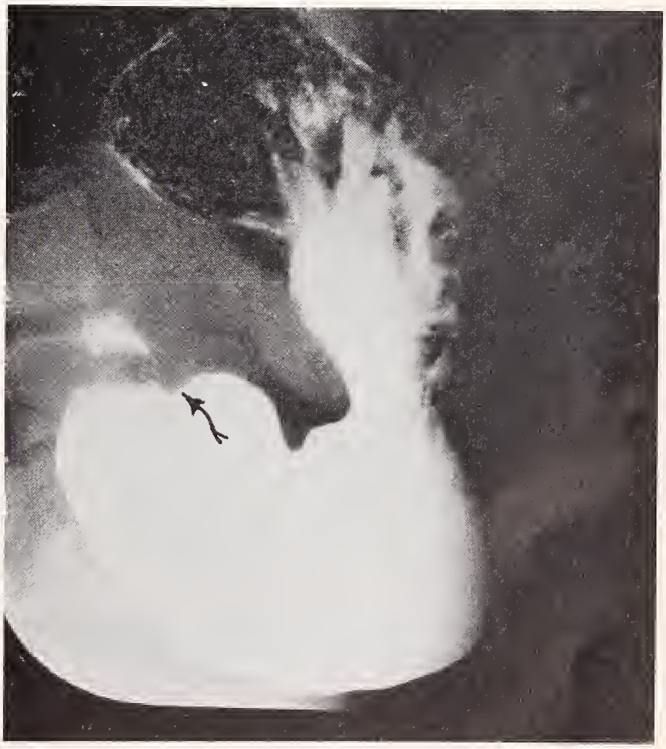

Figure VI

(Case 3. J.F.) Melena occurring daily for 1½ weeks prior to her second admission. Previously diagnosed as pyloroduodenal obstruction due to ulcer. Ledge-defect in distal stomach on lesser curvature is due to adenocarcinoma of the stomach.

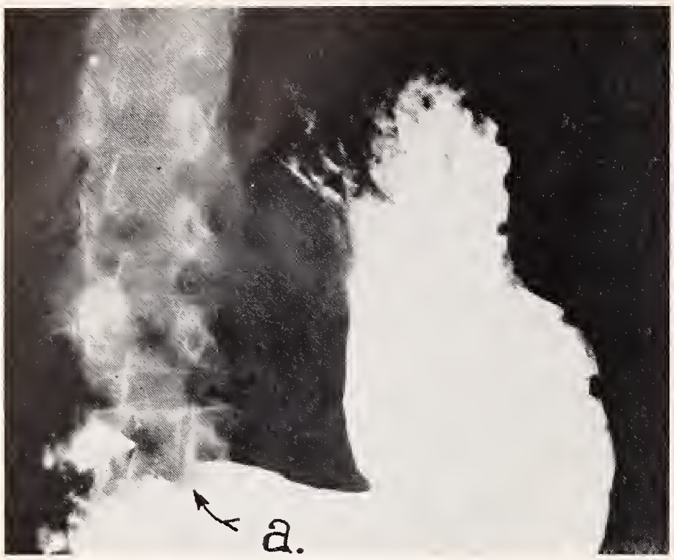

FIGURE VII

(Case 3. J.F.) Ledge-defect at "a" especially well shown on off-centered film.

uneventful recovery and was discharged from the hospital on April 3, 1959.

Comment

This is an example of a not infrequent misdiagnosis of infiltrating tumor of the distal end of the stomach which was undoubtedly present on her initial gastrointestinal series; originally the obstruction was considered benign in origin. The presence of a ledge-like defect in the antrum of the stomach should make one suspicious of carcinoma.

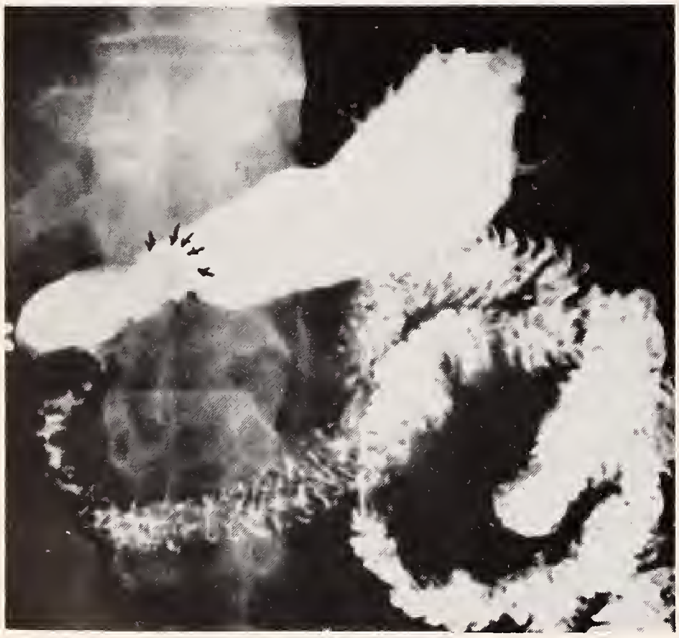

FIGURE VIII

(Case 4. P.M.) Prepyloric suspect lesion showing ulcer with collar of perifocal infiltration by film and fluoroscopy. Carcinoma was thought to be the most likely diagnosis. Pathologic study reviewed on several occasions. No malignancy or cancer-ulcer.

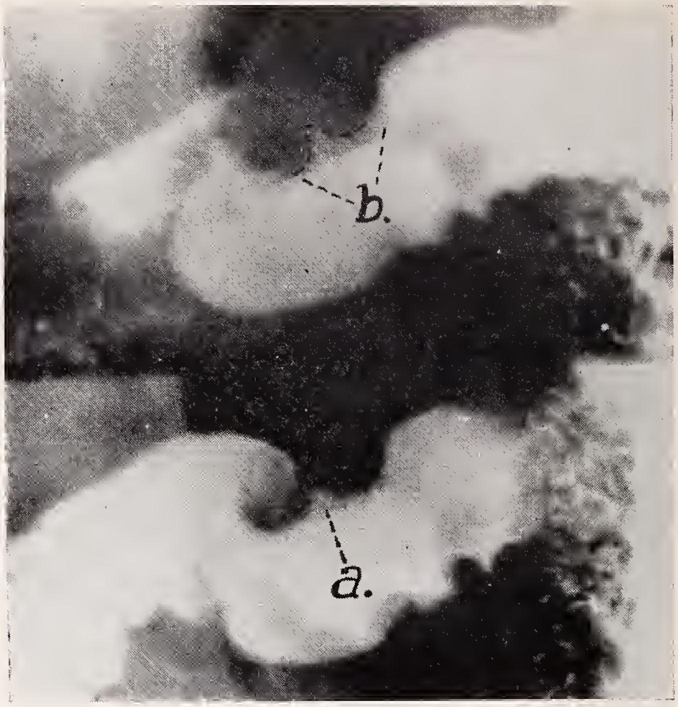

FIGURE IX

(Case 4. P.M.) Spot films of prepyloric suspect lesion showing ulcer at "a" with "Carman's sign" in profile at "b." Note hyperrugosity of distal stomach.

Case 4.—P.M.

A 64 year old white male was admitted with a history of hematemesis which occurred once four days prior to admission. Following this time his stools had been black.

On admission, the patient was pale, dizzy, and complained of epigastric distress. The blood pressure was 130/64. Following stabilization of his bleeding an upper gastrointestinal study demonstrated severe abnormality of the distal stomach. The hematocrit at this time was 34. In view of the infiltration about the ulceration, it was felt likely that this represented a neoplasm. The patient was taken to the operating room. A sub-total gastrectomy was done without incident after which the patient made an uneventful convalescence. Pathologic study revealed a prepyloric ulcer with no evidence of malignancy. The slides were reviewed on several occasions, and there is no evidence of a malignant lesion, nor cancer-ulcer.

Case 5.—A.H.

A 64 year old white male with a history of rheumatoid arthritis of many years. Prior to admission he developed melena with a low hematocrit but without hematemesis.

On physical examination his blood pressure was within normal limits but multiple lymph nodes were noted in the neck and inguinal region. Splenomegaly was also noted. Gastrointestinal study demonstrated four peculiar large oval gastric ulcers

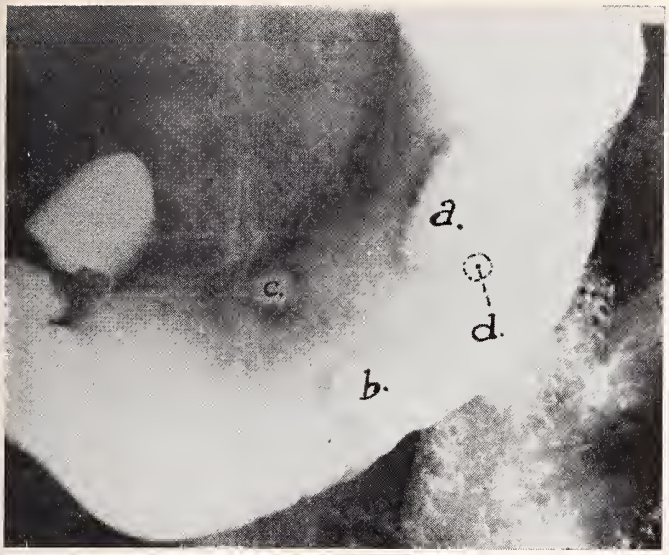

FIGURE X

(Case 5. A.H.) A 64-yr. old male pt. who had melena with low hematocrit but no hematemesis. There was lymphadenopathy and enlarged spleen. Four oval malignant ulcers with perifocal induration (a-d).

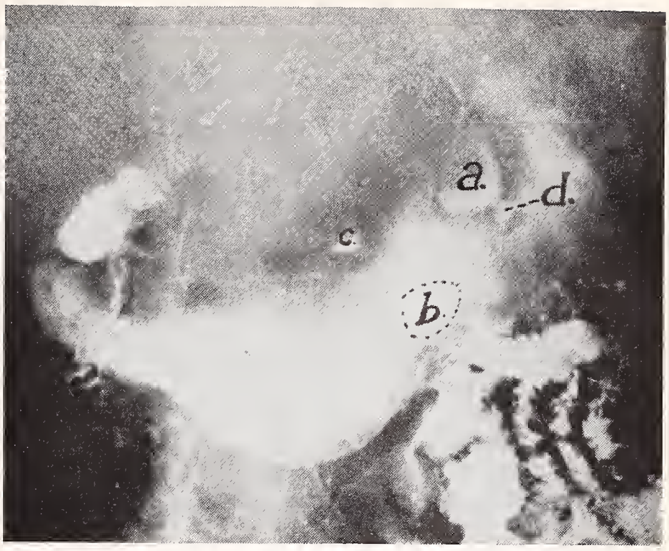

FIGURE XI

(Case 5. A.H.) (Same as Fig. 10) Proven case of stem cell lymphoma.

with a collar of perifocal induration. The course in the hospital was gradually downhill to death. Postmortem examination demonstrated widespread stem-cell lymphoma with involvement of the stomach. The ulcerating lesions were actually ulcers within tumors as shown by microscopy. The 900-gram spleen was filled with tumor. The retroperitoneal space also showed evidence of widespread infiltration by malignancy lymphoma.

Comment

This is an excellent demonstration of multiple ulcerating neoplasms in the stomach, in this instance caused by stem-cell lymphoma. Although sarcomas of the stomach are relatively rare, accounting for only 1 per cent of gastric neoplasia, lymphosarcoma should always be considered in differential diagnosis when multiple ulcerations are encountered particularly in the antrum and pars media.

The type of management, bleeding rate, number of gastrointestinal series done, time interval between admission and roentgen study, and relative mortality rates are shown in Table I.

Table II denotes the frequency of bleeding and site for each management group, whether it be surgery, medical or radiation management that was used not to control bleeding but as treatment of an esophageal cancer. It is included to show that one death resulted from exsanguination into the esophagus.

TABLE II

BLEEDING SITES

	SURGICAL MANAGEMENT	MEDICAL MANAGEMENT	RADIATION MANAGEMENT
Duodenal ulcer	5	24	0
Gastric ulcer	3	4	0
Marginal ulcer	2	3	0
Esoph. varices	2	4	0
Neoplasm	2	2	2
Gastritis	0	2	0
Misc.	2	0	0
Total cases	16	39	2

TABLE I

	PATIENTS MANAGED BY SURGERY	PATIENTS MANAGED MEDICALLY	RADIATION THERAPY PATIENTS	TOTAL %
2-plus bleeding	6	34	1	72%
3-plus bleeding	10	5	1	28%
Upper GI series done	12	34	2	84.2%
No Dx by GI series	1	9	0	21%
No Upper GI series done	4	5	0	15.8%
Time between admission and x-rays	2.65 days (av) 2 hrs-10 days	3.4 days (av) 1 hr-15 days		3.1 days (av) 1 hr-15 days
Deaths	5	6	1	21%

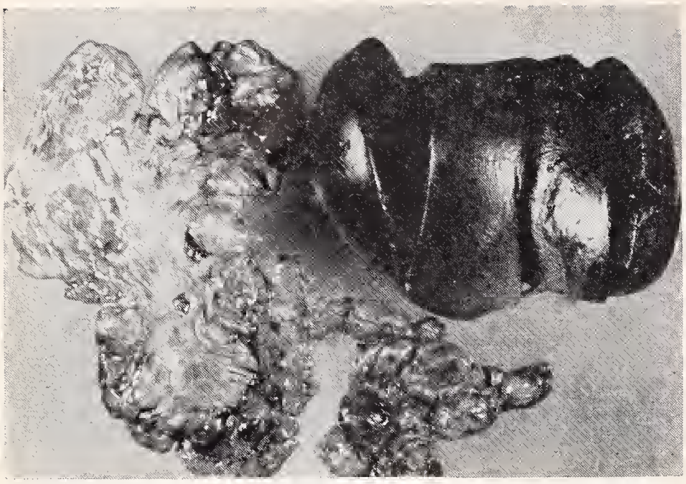

Figure XII

Photograph showing stomach, grossly enlarged spleen, weighing 1060 gm. and enlarged upper abdominal lymph nodes. The stomach has been opened along the greater curvature, showing three of four tumor-ulcerations arranged in the form of a triangle. The largest is at the apex and is about 3 cm. in longest diameter. There is no evidence of gross bleeding from these lesions.

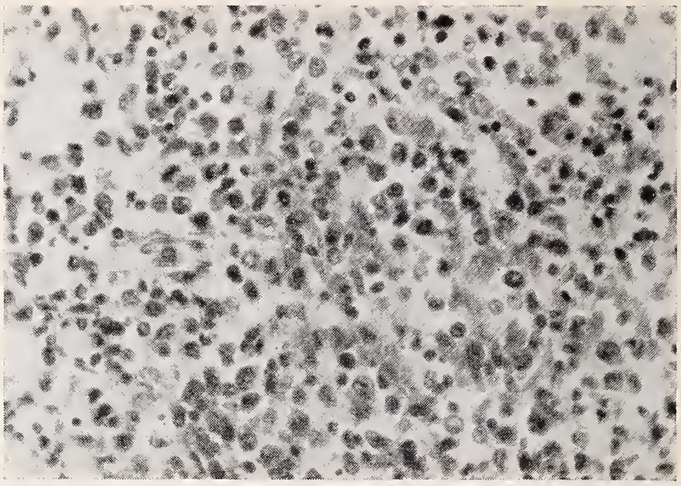

Figure XIII

Microphotograph from wall of largest gastric ulceration, showing it to consist of lymphomatous tumor cells. The largest ones, with uneven chromatin arrangement and indistinct cell margins are examples of the undifferentiated, least mature stem cells of the lymphoid series. Hematoxylin-eosin. 430 x

*Medical Comment**

It is generally agreed at present that the great majority 80—90 per cent of peptic ulcers can be managed satisfactorily by medical means, provided the patient is co-operative. Surgical therapy is reserved for the following categories:—1) perforation, 2) obstruction, 3) intractability, and 4) *hemorrhage.*

The bleeding peptic ulcer should always be managed by constant co-operation between the medical consultants, especially the physician, the surgeon, and last but not least the radiologist. Only by constant team work such as this can the mortality of this condition be kept at a reasonably minimal level.

In general, the young patient with ulcer (below 50 years of age) can be controlled by medical management. Even in this group, however, there are exceptions requring surgical intervention. In the presence of high acid and increased peptic activity, surgery may be necessary even in the very young.

Criteria for surgical treatment may consist of any one or a combination of the following:

1) Tachycardia with a falling blood pressure.
2) Inability to maintain a hematocrit of 35 or above, despite frequent blood transfusions.
3) Advanced arteriosclerosis where inelasticity of the blood vessels prevents adequate contraction.
4) Repeated episodes of acute hemorrhage.
5) Constant slow or subacute bleeding into the gastrointestinal tract (melena) with persistent enemia with a hematocrit of 35 or less.
6) Any gastric ulcer that fails to heal after three weeks of bed rest and adequate conservative treatment.
7) Recurrence of a gastric ulcer in the same location as previously noted by roentgen examination (Leonard).

According to Leonard there is little doubt that a marked reduction in mortality and a substantial reduction in morbidity will be achieved if these criteria are closely followed in all patients with bleeding peptic ulcer.[5]

Summary

1. One of 5 patients admitted with massive bleeding from an upper gastrointestinal tract will require surgery.

2. Gastroduodenal ulcer is the most common cause of massive upper gastrointestinal bleeding.

3. Six of 7 patients examined immediately preoperatively as well as those diagnosed by benefit of previous roentgen examination disclosed the exact source of bleeding.

4. The time interval between admission and upper gastrointestinal series was quite variable depending upon the degree of bleeding, the depth of clinical shock, and the discernment of referring physician so that no definite conclusions can be culled from this study, except to say that in general surgical patients were usually examined earlier (2.6 days vs. 3.4 days).

---

* We are indebted to the Director of Medical Education at Hartford Hospital—Dr. John C. Leonard for the above medical comment.

5. "Blind gastrectomy" without benefit of preoperative roentgen study or insertion of a Blakemoore tube is not without hazard especially if the bleeding is of the extragastric type (esophageal varices). It is, therefore, suggested that a limited upper gastrointestinal series with special attention directed to the esophagus is indicated in severely bleeding patients, particularly if they are free from significant clinical shock. A scout film of the abdomen may assist in disclosing unsuspected ascites or reveal splenomegaly due to portal hypertension. With demonstrable or suspected varices, a Blakemoore tube may be inserted which can be both diagnostic and therapeutic. We feel that a gastrointestinal series is less traumatic to the patient than a Blakemoore tube, and, therefore, should be the initial procedure of choice. If bleeding continues massively and no other cause has been demonstrated by gastrointestinal series, a blind gastrectomy is justifiable since a certain percentage of patients with varices will have either a gastric or duodenal ulcer.

6. Thirty-three per cent of 3-plus bleeders were managed medically —77 per cent were managed surgically.

7. In 75 per cent of all medical patients examined, a bleeding point was disclosed.

8. For all patients, the roentgen study revealed a bleeding point in 79 per cent of individuals examined.

9. Mortality rates for 1959 are as follows (being slightly higher than those reported in the two preceding years).

Medical mortality	10.5%
Surgical mortality	8.7%
Radiation mortality	1.7%

10. The total mortality for both series comprising 223 cases from January 1957 to January 1960 is shown in the following table:

	MORTALITY		TOTAL MORTALITY TO 1960
	1957-1958	1959	
Medical	5 %	10.5%	7.7%
Surgical	4.5%	8.7%	6.6%
Radiation	0 %	1.7%	0.9%

REFERENCES

1. Finsterer, H.: Operative treatment of severe gastric hemorrhage of ulcer origin. Lancet, 1936, 2, 303-305.

2. Hayes, M. D.: Yale University School of Medicine, Department of Surgery, Personal communication.

3. Heublein, G. W., Baker, G. L., and Roy, R. H.: Acute upper gastrointestinal bleeding roentgenologically considered; Experience at the Hartford Hospital, Vol. 84, No. 6, December 1960.

4. Knowles, H. C., Jr., Felson, B., Shapiro, N., and Shiff, L.: Emergency diagnosis of upper digestive tract bleeding by roentgen examination without palpation ("Hampton technic"), Radiology, 1952, 58, 536-541.

5. Leonard, J. C.: Director of Medical Education, Hartford Hospital, Hartford, Conn., personal communication.

6. Spira, J. J.: Gastroduodenal ulcer. Physiopathology, pathogenesis and treatment. London, Butterworth & Co. (Publishers) Ltd., 1956, 253-254.

7. Templeton, F. E., Seattle, Washington, personal communication.

Hypoproteinemia And Edema With Occult Blood In The Stools

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Hypoproteinemia with edema is an uncommon condition in the pediatric age group. The entity may occur alone or in combination with anemia, hypocupremia, eczema, infection, eosinophilia and hypogammaglobulinemia. Recently, work has been done to show that many cases manifest an exudation of proteins into the gastrointestinal tract. To date, no reported case has demonstrated associated guaiac positive stools.

I have recently had the opportunity to observe such a case and feel it is worthy of report.

Case Report

A male infant of four weeks of age was admitted to Middlesex Memorial Hospital because of edema and paleness of 10 days' duration. The child was born of spontaneous, full term delivery, birth weight 6 pounds, 7 ounces and was placed on a soybean milk preparation because of a family history of milk allergy. On these feedings, the child appeared colicky and had diarrheal stools. At ten days of age the infant was seen in the office and it was noted that the circumcision had been infected, but was healing well, and there was residual of impetigo in the groin. No culture was taken. The formula was changed to a breast milk substitute, and, one week later, the weight increased 12 ounces. However, at this time puffiness of the eyes and edema of the extremities were noted. The skin appeared pale and the inguinal nodes were enlarged. Admission was advised.

Admission weight was 7 pounds, 14 ounces. Physical examination, other than the edema, was within normal limits. Blood pressure ranged between 80-100 systolic by palpation method. The child was placed on Nutramigen® and vitamins. Laboratory data: BUN, 9 mgms.%, Serum K, 5.8 meqs., Na, 146 meqs., total serum bilirubin, 0.9 mgms.%, total protein, 4.1 gms.%, albumin 1.7, globulin 2.4, alpha 1 globulin, 0.45, alpha 2 globulin, 0.81, beta globulin, 0.51, and gamma globulin 0.63 gms. %. Electrophoretic pattern of hemoglobins showed 40% fetal hgb. Nose and throat culture grew Staphylococcus Aureus, coagulase positive, phage types 52, 52A, 80 and 81. Blood cultures were negative. Feces showed 3 plus guaiac. Hgb., 10.2 gms., Hct., 31% WBC 7,800 with a normal differential except for 8% eosinophiles on this one examination. Total eosinophiles were 400/cu. mm. Many urinalyses were normal. Plate test for cystic fibrosis was negative (this was done at 4 months of age).

The hgb. rapidly dropped to 5 gms. % on the 6th hospital day and a transfusion of whole blood was given, 20cc./Kg. The hgb. rose to 7.2 gms. and remained at approximately that level thereafter (see Figure 1). Subsequent to the transfusion, the reticulocyte count was 3.6%, the ceruloplasmin level was 44.2 mgms. %, serum Copper, 144 ug/100 ml., serum iron, 91 ug/100 ml., (all within normal limits). Bone marrow examination prior to transfusion showed normal megakaryocytes, normal myeloid series and the erythroid series showed a moderate hyperplasia with a left shift to the pronormoblast and erythroblast level.

Radiographic examination of the chest, intravenous pyelogram, upper and lower gastrointestinal series were normal and did not provide a source of the bleeding. A survey of serum proteins done on the parents and sibling showed no evidence of familial hypoproteinemia.

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On the tenth hospital day the edema subsided. Hemoglobin examination remained between 8 and 9 gms., and the stool guaiac examinations ranged from 2 plus to 4 plus. Shortly after the disappearance of edema, the protein pattern showed marked improvement (see Table I). The infant was placed on oral iron therapy on the twelfth hospital day, and discharged on the 32nd hospital day on this medication, Nutramigen®, solid foods and vitamins.

After discharge from the hospital, the infant was seen weekly in the office, weight gain was adequate and the physical examination was normal except for a palpable spleen. at 17 weeks of age, the stool guaiacs became negative and the hgb. promptly rose to 12 gms. The infant was taken off oral iron and placed on evaporated milk with no sequelae.

Discussion

Hypoproteinemia with edema may be of a transient or chronic nature in any age group. The hypoproteinemia involves a drop in the albumin fraction, usually without affecting the globulins. However, hypogammaglobulinemia has been reported in this syndrome,[1,2] along with hypoglobulinemia.[3] The edema almost invariably clears as the level of albumin rises in the serum, and this sequence of events may be followed in Figure 1 and Table I.

Many cases present with a strong family history of allergy,[1] eosinophilia,[2] eczema,[3] or history of onset suggestive of allergic diathesis.[1] These cases are usually of a transient nature in the pediatric age group. The case presented here also inherited an allergic history of significance. An antecedent infection, probably due to Staphylococcus, was also present. Nisenson,[3] in presenting 8 cases of eczema with edema and hypoproteinemia, felt that infection was a predisposing factor.

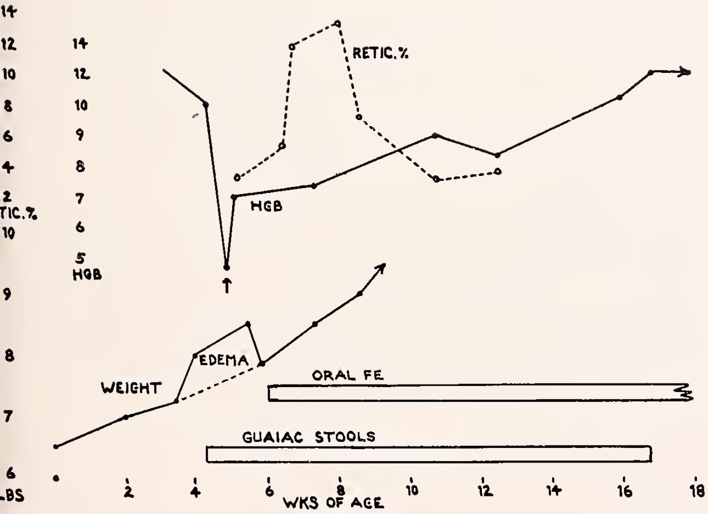

Figure I

Plotted against weeks of age are the variations in weight, hemoglobin, and reticulocyte count. The bars across the bottom denote treatment with oral iron and positive guaiac stools. The arrow indicates the point at which a transfusion was given.

Table I.

Age in Weeks Plotted against Values Obtained in gms.% of the Electrophoretic Pattern of Serum Proteins. Edema Occurred between 4½ and 6 Weeks of Age.

AGE IN WEEKS	TOTAL PROT.	ALBUMIN	GLOBULIN
4½	4.1	1.7	2.4
7½	4.4	2.1	2.3
9½	5.6	3.3	2.3
ALPHA 1 G.	ALPHA 2 G.	BETA G.	GAMMA G.
0.45	0.81	0.51	0.63
0.40	0.80	0.60	0.50
0.40	0.80	0.60	0.50

A considerable number of cases have been presented with associated hypocupremia and iron deficiency anemia,[4,5] Schubert and Lahey[4] feel that the hypoproteinemia is secondary to the marked anemia. In all cases reported, the hypoalbuminemia and edema disappeared as the infant responded to iron therapy. The hypocupremia was also felt to be secondary to anemia and the response to iron did not depend upon the replacement of copper in the child. Interestingly, in the case presented here, the edema disappeared prior to the administration of iron and the hypoproteinemia reverted to normal during the early days of iron therapy. The transfusion the child received, however was a good source of iron. It should be pointed out that the hemoglobin failed to rise to normal levels until the guaiac examinations in the stools reverted to normal, despite an adequate reticulocytosis: a total of 9 weeks.

In 1957, Schwartz and Thomsen[6] coined the term "Hypercatabolic Hypoproteinemia". They demonstrated an increase catabolism of I^{131}-labelled-albumin administered to a patient with idiopathic hypoproteinemia. The degradation rate of albumin was more than three times that of normal subjects. This hypercatabolic state has also been demonstrated by Kinsell et al[7] with the use of S^{35}-labelled-methionine, and Ulstrom et al,[8,9] with other amino-acid isotopes.

Unfortunately, Schwartz and Thomsen's studies, although demonstrating an increased turnover of radioactively labelled albumin, failed to explain the mechanism involved because of the fact that albumin is subjected to breakdown in the gastrointestinal tract to amino acids by the various proteolytic enzymes. The released I^{131} is reabsorbed and excreted by the kidneys. Thus albumin is not ideal in accurately pinpointing the defect.

In 1959 Gordon[10] described the method of using I^{131}-labelled-P. V. P. to demonstrate the loss of albumin in the gastrointestinal tract. P. V. P. has the characteristic of having approximately the same molecular weight as albumin and of being unaffected by the enzymes of the stomach and upper gastrointestinal tract. He felt that this loss of proteins was so similar to exudation of substances from the skin or through urine, that he suggested the term "exudative enteropathy". This work was substantiated by Schwartz and Jarnum[11] using the same substance in 4 adults. They also point out that many of these cases have demonstrable gastrointestinal defects or disturbances such as hypertrophic gastritis or diarrhea. A case with widespread gastric carcinoma also illustrated exudation of proteins along with hypoproteinemia. Young et al[12] demonstrated this same leakage in a boy, age 12, with a long standing history of intestinal malabsorption and hypoproteinemia with I^{131}-labelled-P. V. P. Ulstrom and Krivit[13] use the term "exudative enteropathy" to describe these same findings in three children, two of which were infants, age 2 and 3 months. The other case, a 4 year old girl with chronic hypoproteinemia and anemia, showed evidence of iron loss in the stools. Biopsy of the jejunum and stomach were normal.

The case presented here evidenced edema along with a rapidly developing anemia due to blood loss in the gastrointestinal tract. Possible predisposing factors were allergy, gastrointestinal disturbance and infection. With the partial correction of the anemia by transfusion, the edema gradually subsided and the protein pattern reverted to normal. Despite a profound reticulocytosis, the hemoglobin level failed to rise to normal until the occult blood disappeared from the stools. Unfortunately an exudative phenomenon was not ruled out in the infant because of the short duration of symptoms and the lack of facilities at the time of admission. Nevertheless, this case illustrates the supposition that there may be many factors involved in the genesis of the entity "idiopathic hypoproteinemia" and the blood loss in the intestinal tract could be one factor. On the other hand, this blood may also be one manifestation of the picture of "exudative enteropathy" and may be illustrated in future cases.

Summary

A case of hypoproteinemia, edema, anemia and occult blood in the stools is presented which rapidly returned to normal status with transfusion and iron therapy. The anemia, however, did not completely revert to normal until the occult blood disappeared. A brief resume of the chronological thinking in this entity is presented.

REFERENCES

1. Fried, C. T. and Henley, W. L.: Deficiency in gammaglobulin with edema and hypoproteinemia. Pediatrics, 14: 59, 1954.
2. Degan, T. J.: Idiopathic hypoproteinemia. J. Pediat., 51: 448, 1957.
3. Nisenson A.: Hypoproteinemia and edema in Eczema. J. Pediat., 46: 544, 1955.
4. Schubert, W. K. and Lahey, M. E.: Copper and protein depletion complicating hypoferric anemia of infancy. Pediatrics, 24: 710, 1959.
5. Zipursky, A., Dempsey, H., Markowitz, H., Cartwright, G., and Wintrobe, M. M.: Studies on copper metabolism, XXIV, hypocupremia in infancy. A.M.A. J. Dis. Child., 96: 148, 1958.
6. Schwartz, M. and Thomsen, B.: Idiopathic or hypercatabolic hypoproteinemia; case examined by I^{131}-labelled albumin. Brit. Med. J., 1: 14, (Jan. 5) 1957.
7. Kinsell, L. W., Margen, S., Tarver, H., Frantz, J. McB., Flanagan, E. K., Hutchin, M. E., Michaels, G. D., and McCallie, D. P.: Studies in methionine metabolism. J. Clin. Invest., 29: 238, 1950.
8. Ulstrom, R. A., Smith, N. J., and Heimlich, E. M.: Transient dysproteinemia in infants, a new syndrome. I. Clinical studies. A.M.A. J. Dis. Child., 92: 219, 1956.
9. Ulstrom, R. A., Smith, N. J., Nakamura, K., and Heimlich, E.: Transient dysproteinemia in infants. II. Studies of protein metabolism using amino acid isotopes. A.M.A. J. Dis. Child., 93: 536, 1957.
10. Gordon, R. S.: Exudative enteropathy: abnormal permiability of the gastrointestinal tract demonstrable with labelled P. V. P. Lancet, 1: 325, (Feb. 14) 1959.
11. Schwartz, M. and Jarnum, S.: Gastrointestinal protein loss in idiopathic (hypercatabolic) hypoproteinemia. Lancet, 1: 327, (Feb. 14) 1959.
12. Young, W. F., Levin, B., Fowler, J. F., and Miles, J. M.: Gastrointestinal protein loss in severe malabsorption complicated by idiopathic (hypercatabolic) hypoproteinemia. Lancet, II: 85, (August 8) 1959.
13. Ulstrom, R. A. and Krivit, W.: Exudative enteropathy, hypoproteinemia, edema and iron-deficiency anemia. Society Transactions, A.M.A. J. Dis. Child., 100: 509, 1960.

The Role Of Biopsy In The Diagnosis Of Skin Disorders

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THERE is a group of diseases for which biopsy and histologic examination have long been regarded as the final and authoritative diagnostic technique. The neoplasms are a notable example of these. In another group of diseases, biopsy, though often of diagnostic help, is only one of many techniques that contribute to diagnosis. Although dermatologists have made use of histologic methods for many years, the value of biopsy as a routine method in the diagnosis of skin disorders is only recently gaining widespread recognition.[1] My purpose in this communication is to indicate the values and limitations of skin biopsy, and to indicate in which clinical situations the procedure may be of diagnostic value, and in which the pathologist can be of little diagnostic help.

Value Of Biopsy

From the point of view of the pathologist, nearly all skin lesions subject to biopsy may be placed into one or the other of two great classes:

1. Neoplasms, warts, keratoses, and the isolated, tumor-like skin lesions.
2. Diffuse dermatoses and dermatitides.

The first group includes nevi, verrucae, carcinomas, scars, keratoses, granulomas, and all those lesions, whether single or multiple, that are isolated. These, in a general sense, may be regarded as surgical diseases of the skin, without implying that surgery is necessarily the therapy of choice. Biopsy, when performed, is often total excision, and may often be curative. The second group includes the great mass of inflammatory and infectious diseases, usually widespread and diffuse. They may be regarded as medical diseases of the skin.

Generally speaking the histopathology of lesions of the first group is well defined, and the morphologic changes are diagnostic. Indeed, these lesions are defined and distinguished from one another by their histology, rather than by their clinical characteristics. In lesions of this group the clinician is often uncertain as to the exact diagnosis, but an adequate biopsy, examined by a competent pathologist, will almost always yield an accurate and specific diagnosis.

In diseases of the second group, the state of affairs is quite different. Although the etiology and pathogenesis of many dermatoses is still unknown, a huge number of different disease entities have been described and are generally recognized. Many of these are distinguished from one another empirically on the basis of such clinical criteria as location, distribution, duration, and other characteristics not necessarily related to etiology or microscopic morphology. There is a greater variety of them than of different histologic changes that can be recognized by the microscopist. There are only a certain number of morphologic changes that can be recognized in a skin biopsy, and the limited number of combinations of these cannot be uniquely related to the huge number of dermatologic entities.

Thus in the diffuse dermatoses the pathologist often cannot supply the clinician with a single specific diagnosis. Sometimes, however, he can. And frequently he can be of help in the differential diagnosis by ruling out some of the possibilities, or by suggesting that one is more likely than another.

Although the histology is often not diagnostic in the diffuse dermatoses, sometimes it is. Psoriasis, lichen planus, and discoid lupus erythematosus are the three most common conditions that are histologically relatively specific and may be expected to yield a definite pathologic diagnosis in the majority of instances. Generally speaking, the eczemas and the chronic dermatitides, atopic, contact, etc. are non-specific. There is, however, a large number of more unusual conditions that often yield a definite histologic diagnosis. Among these are pemphigus, Dariers' disease, mycosis fungoides, urticaria pig-

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mentosa, dermatitis herpetiformis, lichen sclerosus et atrophicus, myxedema, the viral exanthems, and many more.

In clinical cases of the diffuse dermatoses that are diagnostic problems biopsy may or may not be a helpful procedure. The clinician should be aware of the kinds of diagnostic problems that the histologist can help to solve. Generally, in cases of eczematous eruptions, the pathologist can be of little help in determining whether the condition is a contact dermatitis, atopic, a drug eruption, or even seborrheic dermatitis or pityriasis rosea. However, if psoriasis, lichen planus, or discoid lupus erythematosus enter into the differential diagnosis, it is very likely that histological examination can rule these diagnoses in or out. In considering bullous eruptions, pemphigus can usually be established or excluded. Similarly, if any of the more unusual conditions listed above enter the differential diagnosis, biopsy often serves to rule them out. In the fungus infections, histological examination can usually provide the diagnosis, but examination and culture of scrapings from the lesion is a less traumatic procedure and is more likely to identify the responsible fungus.

Technique Of Biopsy

The technique of biopsy is of the utmost importance, and an inadequate or poorly selected biopsy is worse than useless: in fact, it may even be misleading. A typical lesion should be selected, as the pathologist is basing his evaluation of the entire patient on a minute fragment of tissue. Early, immature lesions should be avoided, as should old, involuting lesions. Larger lesions are best biopsied at the edge, so as to include normal skin in the specimen. Multiple biopsies are often worth the extra trouble, especially if the patient has pleomorphic lesions and may possibly have two diseases. The specimen should be placed immediately in a fixative. Many pathologists prefer special fixatives for skin specimens, but 10 per cent formalin is always acceptable.

In general, superficial curettage of skin lesions must be condemned as a biopsy procedure. Admittedly, it sometimes yields diagnostic fragments of some tumors, but it too often produces inadequate material, and the possibility of error in interpreting minute and distorted fragments is too great to be acceptable.

Punch biopsies are usually very adequate if properly obtained. In general, at least a 5 mm. diameter punch should be used. Smaller specimens are difficult to process by routine histologic methods, and they may not give an adequate representation of the characteristic features of the lesion, which may be irregularly distributed. Smaller punches should be used only for lesions less than 5 mm. in diameter. The biopsy punch should be inserted all the way through the dermis, and the specimen separated in a cleavage plane in the subcutaneous fat. If in the differential diagnosis such conditions as erythema nodosum or Weber-Christian disease that largely involve the subcutaneous tissue are included, deep biopsy is essential.

Knife biopsies are of course always acceptable to the pathologist, and may be preferred for excision biopsy of some of the larger nevi, tumors, and keratoses.

Importance Of History

Although a diagnosis of a lesion in the "tumors and warts" group can often be made by the pathologist without any history, it is often helpful and sometimes indispensable. In the evaluation of biopsies of the diffuse dermatoses, on the other hand, history is always essential. The site of biopsy should be stated, as should the extent of the lesion. It is most helpful if the clinician supplies a differential diagnosis, or lists some of the possibilities that are suggested by clinical examination of the patient. Some lesions that are clinically quite distinct may be histologically very similar. For example, some biopsies of discoid lupus erythematosus show changes strikingly similar to those of a senile keratosis, but the two are usually easily distinguished clinically. A few clinical data will prevent gross errors on the part of the pathologist.

If the pathologist has a clinical differential diagnosis to consider, he can often rule out some of the possibilities mentioned, and suggest some one or other as being most likely, even when he is unable to make a single absolute and specific diagnosis.

As clinicians are becoming increasingly aware of the values and limitations of skin biopsy, and as pathologists are becoming increasingly cognizant of the peculiarities of dermatopathology, biopsy is playing an increasingly important role in the routine diagnosis and management of skin diseases.

Synopsis

The uses and indications for skin biopsy in the diagnosis of dermatologic disorders is discussed. The procedure may be expected to yield a specific histologic diagnosis in cases of tumors and the isolated skin lesions, but in cases of the diffuse dermatoses, it is often not productive of a single, specific diagnosis. The history and clinical findings are of the utmost importance in evaluating the histologic changes, and the technique of biopsy and selection of the site are critical.

REFERENCES

1. Beerman, H. and Pillsbury, D. M.: Dermatopathology as a field of research. Lab. Invest., 6: 389-411, (Sept.) 1957.

2. Caro, M. R.: Diagnostic pitfalls of dermal pathology. A.M.A. Arch. Dermat. & Syph., 67: 18-29, (Jan.) 1953.

Low Back Pain And Allied Disorders Treated With Phenyramidol*

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DURING the past few years numerous agents have been available for the treatment of low back pain and allied disorders. The great need for an effective non-narcotic, analgesic, muscle relaxant, particularly for ambulatory patients, is well known. In many instances, ambulatory orthopedic problems are frequently of a chronic nature, (as in the arthridities) and as such must be treated over a long period of time. The medication for relief of pain and muscle spasm should be of the type that can be given over a long duration without the development of cumulative toxicity, and yet satisfactorily relieve the pain and muscle spasm. Phenyramidol is a moderately potent non-narcotic analgesic with concomitant muscle-relaxant activity. The pharmacological characteristics of the drug and its comparative properties in animals with those of other analgesics have been reported by O'Dell and colleagues.[1-3]

The compound is chemically of a novel character and is unrelated to other analgesics or muscle relaxants that have been reported or are in current use.[4]

The drug is one of a new family of synthetic compounds in which analgesia and muscle relaxant properties appear to be independent variables. The absorption, metabolism, and excretion of the drug have been studied by Miller.[5]

The effectiveness of phenyramidol via the oral route of administration previously has been demonstrated in published reports (Batterman et al[6,7] and Wainer[8,9]) as well as in pending publications. The drug appears to have been well accepted by the patient during its period of availability. Batterman et al have found the drug to be particularly effective in ambulant patients with musculoskeletal disorders. The only untoward reactions noted were occasional gastrointestinal irritation of a mild or insignificant type, and pruritus. As a result, it was felt that it would be of particular interest to evaluate the performance of a parenteral form of this drug together with oral medication, in a group with predominantly musculoskeletal disorders.

An investigation of phenyramidol was undertaken at the Boston Industrial Medical Center in a series of 69 patients, with symptoms pertaining to the musculoskeletal system. Many of this group had sustained low back disorders, cervical sprains, injuries to the shoulder girdle etc., as a result of industrial accidents. Indications treated included lumbosacral strain, cervical sprain, postoperative ruptured lumbar disc etc.

Because of the nature of their work (a large number of this group were "sandhogs" working in the construction of the new East Boston Tunnel, and another group consisted of men working for such companies as Coca Cola Bottling Company, in whom back strains are frequent) most of the patients had painful muscle spasm of relatively severe intensity. Because of the severity of the conditions under treatment a "true" double-blind evaluation did not seem feasible, but placebo medication was substituted for the active medication during the treatment period, and it became quite evident (see Table I) that those patients responding favorably to phenyramidol failed to respond to placebo

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* *Furnished as ANALEXIN® INJECTABLE by Irwin Neisler & Co., Decatur, Ill.*

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Table I

Results with Intravenous and Oral Phenyramidol—Relief of Symptoms in Sixty-nine Patients

	WITH ANALEXIN				WITH PLACEBO		
DIAGNOSIS	EXC.	GOOD	FAIR	POOR	EXC.	FAIR	POOR
Lumbosacral sprain	26	13	3	5	3	5	39
Knee sprain	1	0	0	0	0	0	1
Shoulder sprain	5	2	1	0	1	1	6
Traumatic synovitis of knee	2	0	0	0	0	0	2
Dorsal spine sprain	1	1	0	0	0	1	1
Cervical sprain	14	3	0	2	1	3	15
Postoperative ruptured lumbar disc	1	0	0	0	0	0	1
Ankle sprain	0	1	0	0	1	0	0
Ruptured internal cartilage of knee	1	0	0	0	0	1	0
Fracture of coccyx	1	0	0	0	0	0	1
Ruptured internal meniscus, knee	1	0	0	0	0	0	1
Contusion of leg	0	0	0	1	0	0	1
Grand Total: 85	53	20	4	8	6	11	68

Note: In many cases there were multiple diagnoses per patient—there were therefore 85 diagnoses in 69 patients.

therapy. Originally, it was decided to combine oral administration of phenyramidol with a series of intravenous injections to maintain muscle relaxation. The concomitant administration of the drug in its oral form was of definite value in overcoming muscular spasticity. Initially, only 25 mg. were administered intravenously. The dosage was increased as more experience was gained until 500 mg. intravenously was determined to be the optimal dosage. The adult of average weight is now administered 500 mg. by slow (over an interval of 1-2 minutes) intravenous injection. The patient is then maintained on 200-400 mg. q.i.d. by mouth followed by subsequent intravenous administration of phenyramidol at appropriate intervals as indicated.

It has been our finding that severe muscle spasm can best be controlled by using this regimen.

Phenyramidol is given intravenously only when the recipient is in the dorsorecumbent position, because of the ensuing dizziness or vertigo that frequently occurs immediately following its use. All patients receiving intravenous phenyramidol remain in the dorsorecumbent position for a period of at least five minutes, and then remain in the waiting room for at least fifteen minutes before leaving the office. In a few instances it has been necessary to have those patients with more severe reactions rest for a period of half-an-hour to forty-five minutes, especially if they are driving cars. The results were based on both subjective and objective findings, and were graded "excellent" when complete relief of pain was obtained. "Good" denotes a nearly complete relief of pain. "Fair" denotes a satisfactory reduction of discomfort when only slight residual tenderness remains over the affected areas. "Poor" stands for no tangible benefits from this medication. Table I shows that 77 of the 85 conditions (in 69 patients studied) or 91 per cent of the cases, obtained either complete or satisfactory response from phenyramidol therapy. Side-effects occurred in four patients, and consisted of mild nausea. Symptoms that may be prominent, within two minutes after injection of phenyramidol are as follows:—

1. sensation of lightheadedness
2. great warmth or heat present in cheeks and neck
3. flushing of cheeks
4. numbness of tongue
5. metallic taste
6. extension of the sensation of heat distalward towards chest, back, and lower extremities, in this order.

One infrequent complaint was pain, lasting for two minutes extending from the antecubital space (site of injection) proximalward to the shoulder on the same side. Of a total of 69 patients so treated, less than 3 per cent refused to have subsequent injections of this drug. It was thought that those few who did refuse intravenous therapy did so simply because they had a fear of needles.

Summary

1. There has been reviewed a series of 69 patients with varied orthopedic conditions who have been treated with phenyramidol both intravenously and orally.
2. No serious untoward side-effects were obtained from the use of the intravenous or oral tablet form.

3. An overall excellent to good response was obtained in 91 per cent of the conditions treated.
4. An ideal method of treatment, or breaking the vicious cycle of pain resulting in muscle spasm and more pain, is the use of intravenous phenyramidol three times a week combined with a daily oral maintenance dose.
5. Analgesia, plus muscle relaxation, has been demonstrated effectively in the vast majority of patients in this study.

REFERENCES

1. O'Dell, T. B.: Ann. New York Acad. Sciences, (86) (1) 191-202,1960.

2. O'Dell, T. B., Wilson, K. L. R., Napoli, M. D., White, H. D., and Mirsky, J.: J. Pharmacology. Exp. Ther., 128 (1) 65-74, 1960.

3. O'Dell, T. B.: Arch. International Pharmacodyn. CXXXIV (1-2) 154, 1961.

4. Gray, A. P. and Heitmeier, D. E.: J. Amer. Chem. Soc., 81: 4347-4350, 1959 ibid: 4351-4355, 1959.

5. Miller, L. D.: Toxicol. and Appl. Pharmacol. 4 (2) 190-199, March, 1962.

6. Batterman, R. C., Grossman, A. J., and Mouratoff, G. J.: Amer. J. Med. Sc. (238) (3) 97/315-100/318, 1959. Ann. New York Acad. Science, 86 (1) 203-207, 1960.

7. Batterman, R. C., Mouratoff, G. J., Kaufmann, J. E., and Fishgold, J. T.: Current Therapeutic Research 4 (3), 81-88, March, 1962.

8. Wainer, A. S.: Ann. New York Acad. Sc., 86 (1) 250/252, 1960.

9. Wainer, A. S.: J. Amer. Med. Wom. Assoc., 16 (3) 218-220, 1961.

ABSENTEE VOTING

In keeping with the activities of the League of Women Voters and other groups, including the newly-formed Connecticut Medical Political Action Committee, attention of members of the Society is directed to two very important aspects of casting their votes in the November elections:

1) At the risk of being unduly repetitious, no American can vote at election time unless he has registered with the Registrar of Voters in his community of residence. It is of no use to become politically oriented and politically active if, at the moment of truth, the citizen is disqualified at the polls because he has failed to register.

2) Such out-of-state meetings as those of the American Academy of Ophthalmology and Otolaryngology and the New England Postgraduate Assembly are scheduled to be held at or near election day in November. Voting by absentee ballot is permissible in Connecticut, and any physician who plans to be away at that time should consult immediately with his local Registrar of Voters concerning how and when he may vote in absentia. This is equally applicable to those who have children of voting age attending college, in the service, etc. Ballots can be obtained for them at the same source.

The Ileostomy Associations—
"For Those Who Need"

SHERWOOD GOFFIN
New Haven

THE red-haired, freckled high school teenager turned and twisted restlessly in his troubled sleep. The uncomfortable red bulk of the M-A tube in his small nostril seemed to impair even the sharp and the quick of his breathing pattern. Muffled pleas came from his dry lips.

"No! Don't let them do it to me. Don't, please . . . please."

Yesterday, an unthinking, anciently informed hospital roommate had told him cruel and fantastic stories about the operation he would have to undergo to cure him of his intractable ulcerative colitis.

This day I had come, as hundreds had before me, to offer the boy comfort, and to inform him of the new life that was ahead of him . . . a life free of tortuous diets, pain, emaciation, bowel distress, multiple bowel movements, and overwhelming weakness. I was there to tell him that the operation would be a rebirth for him. By reason of his sickness, he would otherwise have to go on living but half the life he would as a normally active boy. His boyhood would cease to exist, and he would have to commence a life of semi-invalidism, never to return to the whirlwind ways of his friends again. Then, I would tell him of the wonderful things he would again be able to do just a few months after his operation. I would explain to him the mechanical aspects of the new physical characteristic he would have, and an idea of the only minimal care he would have to give his appliance, so that he could be assured of eventually keeping it on for an average of five to six days at a time.

The nurse awakened him from his fitful slumber, and I told him who I was, and why I was there. I told him of all that he had to be optimistic for, and I watched his facial expression as it changed from a trembling jaw and a determined stare at the hospital ceiling, to calm interest.

When I arose to leave, he managed a smile, even through the unpleasantness of the tubular burden within his writhing innards. I felt a warm glow deep inside me rising out all over as he spoke to me, however feebly, for the first time.

"Thanks," he said.

I am a member of QT New Haven, Conn., Inc., the Ileostomy Association serving much of Southern Connecticut. Since the time I became an ileostomist, I have also joined QT New York, worked with QT Boston, and formed a young adults group in New York, the latter which will be described further on. When it was but four months after my first operation, I became editor of the QT New Haven Bulletin. I had to relinquish this post when I returned to my junior year Pre-med studies at college in February 1961, but I nevertheless still want to devote part of my time disseminating information regarding the club, and the latest advances in ileostomy care to doctors and medical personnel, whenever and wherever I can. Most of all, I want to help new patients through the hard first weeks before and after their operation, as my colleagues locally, nationally, and internationally have been doing and will continue to do as long as the ileostomy remains the only means of successfully and permanently curing chronic ulcerative colitis.

Another goal of mine is to attempt to inform the layman of some of the truths concerning the ileostomy, so that perhaps someday, the ileostomy will not be considered a stigma on the lives of those who have them. I hope that the common

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person will finally realize that an ileostomist is not a freak, and the near-tragic incident that I have introduced this article with—among hundreds —will never need happen again.

What is QT? I know of quite a few physicians who do not even know such a club exists. If they have heard of the club, many believe it is a place of gathering where ileostomists come to console themselves in the knowledge that there are others "in the same boat". This may perhaps be true for the pre-operative or newly post-operative patient who comes to our meetings, but the club *does* have functions other than this. Among them are those I have mentioned in the previous paragraph.

The introduction to the "Manual For Ileostomy Patients" published by QT Boston (which incidentally, should be in the office of *every* physician) has this to say about the club:

"QT offers to those with ileostomies, two kinds of help, emotional and practical. We discuss problems that affect our contact with other people. Among ourselves, we find it possible to work out those difficulties which people without an ileostomy cannot solve for us. We discover that our troubles are not unique; we learn to face them and to do something about them. We have a visiting service for new patients, who, more than anyone, need to see with their own eyes, that one can be healthy and active with an ileostomy.

"On the practical side, there is no limit to the tricks and details of handling equipment and of techniques involved in using appliances effectively. By sharing our experiences, both at meetings and through literature, we learn the most effective methods and are able to pool information which can be passed on to doctors, nurses, and to manufacturers. At our monthly meetings, these practical matters are talked over; we also display appliances available. Doctors and other professional people are invited to discuss topics of interest to us."

Of all these aims, perhaps the one of most import is our visiting service. We are the new patient's only real door to peace of mind. He looks at us; he questions us; he sees that we look as normal and robust (and most of the time—as fat) as his next-door neighbor. He hears that we participate in sports and swimming. The woman sees that she can still wear a sheath dress with her appliance completely unnoticeable, and maintain her all-important vanity.

We can now tell them that in the past ten years, it has been successfully proven that QTers can father, and most important to the women, bear children without any physiological or psychological disadvantages. In fact, just last year, one of our members gave birth to twins without any severe complications. This peace of mind cannot be underestimated. Good preparation mentally will invariably speed the physical recovery of the patient. This is our main goal. We, who have gone through it all, know that every flash of pain we experienced the first weeks as a result of our operation, was well worth it.

The QT Club was first organized as a mutual-aid group in 1950 at New York City. The title "QT" came from wards Q and T of the Mount Sinai Hospital from which the first members of the New York group were recruited. QT Boston was formed soon after the parent New York Club, and was the first to follow suit with New York in the adoption of the name QT, for the sake of unity. The idea soon caught on, and many of the clubs which have been forming yearly across the country, have QT as their name today. There are, at the latest counting, thirty-eight clubs in twenty-two states spread evenly across the United States, and five in Canada. The largest is QT New York with 850 ileostomists. Boston, which formerly led in numbers, at one time boasted members from all New England until separate groups were formed in Connecticut and Eastern Massachusetts. A cross-country committee was appointed at the November 1960 Ileostomy-Colostomy Convention held at New York, and is formulating the creation of a United Ileostomy-Colostomy Association, including the United States and Canada under its aegis. There are in addition, foreign associations, from the six region Ileostomy Association of Great Britain to our east, the three region QT Australia to the west, and south to the small group at Johannesberg, South Africa.

Recently, with the help of a group of New York students, I formed a Young Adults branch of QT New York—the QT Young Adults (QTeens) of New York, of which I am acting President. Our goal is mutual aid for young adults, combining social activities with discussion periods on specific young adult problems at each meeting. We also intend to publish periodic articles through the bulletin of QT New York. We are dedicated to the idea that "having an ileostomy can be fun", and that in the company of those who are our own age and share a common problem, we can discuss our mutual situation in a young adult perspective, without inhibition.

When I look upon the days of just one decade ago, I can truly give thanks that I live in these times—when medical science is advancing every day of every month, in every year. I give thanks that I have become an ileostomist in these years of great progress in appliance manufacturing and in ileostomy care and know-how; of the great advances recent years have brought in surgery which have created an almost ideal ileostomy—allowing us to function in perfect harmony with almost all of today's entire social sphere. I give thanks especially for QT of 1962.

Our QT New Haven group was formed in 1957 and incorporated in 1959. There is so much more we would like to be able to accomplish in a wider scope, to reach more people in more areas. We wish to become more of an important function in the Connecticut Medical Community than we are at the present.

I call upon all of you to get in touch with us to find out what we can do for you, and to avail yourselves of the services that we offer you. Familiarize your patients with us, and introduce them to us, an organization which is, in the words of the motto of QT New York, . . . "For Those Who Need."

He [Cajal's father] bequeathed to me his moral qualities to which I owe what I am; the religion of the sovereignty of will, faith in hard work, the conviction that a spirit of steadfast and unrelenting determination is capable of moulding, and integrating everything from the muscle to the brain making good the deficiencies of nature and even overcoming the misfortune of character, the most niggardly and refractory phenomena of life. It was from him also that I acquired the commendable ambition to be something and the resolution neither to consider any sacrifice too great for the realization of my aspirations nor even to change my course for any secondary considerations.

—Ramon Y. Cajal, *Recollections Of My Life.*

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EDITORIALS

What Should We Know About Drugs?

Greiner[1] points out that when a medical scientist hears about an interesting new drug, he looks for reports in the medical literature which will help him use it effectively on his patient. He reads about toxicity, the testimonials of its use if given by various degrees of enthusiasm. But what does he really need to know in order to be able to settle the value of the drug in his therapeutic practice? He needs to know the drug's action on human patients not just on animals, or what someone stated in a "personal communication." He should learn the result of double-blind tests and statistical verification. Especially is it important to have strict comparisons between a new drug and the older drugs of similar actions. This is all subsumed under the discipline of clinical pharmacology, which is that branch of experimental medicine which includes basic clinical research and clinical evaluation of new drugs. In other words, it is concerned with scientific truth, human life but also with the pharmaceutical industry. Because the cost of testing new drugs is high and financial support is limited, the money at present comes from the pharmaceutical industry which understandingly has a particular interest in the compound being evaluated. This can hardly be a background to encourage critical study.

Originally, the Materia Medica flourished without any scientific blessing. Any suggestion or theory introduced a new drug if it was due to an authoritative sounding statement by a respectable physician. A reaction to this state of affairs led to a period of therapeutic nihilism during which morphine, digitalis and quinine alone were considered useful. Empirical observations were neglected and one searched for a "scientific" rationale to suggest the use of a drug. It was at this period that the facts of animal pharmacology were transferred indiscriminately to human therapy.

Now for the first time in centuries, the conscientious physician has a real chance to progress beyond therapeutic nihilism. What is needed is the frankly empirical attitude that scientific clinical testing is the only foundation of therapy. Fortunately, there are new reliable methods for evaluating drugs in a clinical situation and these methods are now available to the general medical reader.[2–5] It is clear that only doctors trained in such methods can be expected to utilize them correctly and it would probably be better if the average physician did not try to evaluate drugs without considering these methods. This is not to say that the doctor should not be alert to many realities. There are biological variations among patients and the optimal dose of the best drug is found only by individual experimental trial. The doctor is forever devising new trials and therefore constantly employing individual experiments in his medical practice. They add to the physicians clinical acumen and wisdom, but little to "scientific evidence." For a case history is merely one experience, it may present a clue of great importance but it cannot lead to a generalization. A single experience or a single event cannot give rise to a "problem." It must first apply to several instances before a problem can even be stated. Once stated, however, it must then be set up for verification and only the clinical pharmacologist can really be depended upon to give us a correct answer.

What it all adds up to is that scientific clinical verification of a new drug is difficult to find. It does not come from a case history alone or from an "impression" no matter how astute the clinician is who offers it. It comes from scientific verification from which alone we can get information as to how justified we are in using a drug on patients. Scientific verification is a specialized discipline. It begins with the stating of a problem, of its testing first in animals and then on man and finally its therapeutic application by the practicing physician.

L.H.N.

REFERENCES

1. Greiner, T.: Why we rarely know about drugs. Journal of the A.M.A., 177: 42, July 8, 1961 .
2. Beecher, H. K.: Measurement of subjective responses: quantitative effects of drugs. New York, Oxford University Press, 1959.
3. Medical surveys and clinical trials. Edited by L. J. Witts, London, Oxford University Press, 1959.
4. Clinical evaluation of new drugs. Edited by S. O. Waife and A. P. Shapiro, New York, Paul B. Hoeber, Inc., 1960.
5. Quantitative methods in human pharmacology and therapeutics. Edited by D. R. Laurence, New York, Pergamon Press, 1959.

Iron Metabolism

The relatively new discipline of electron microscopy has resulted, as all new techniques do, in a new and bewildering terminology, a vast amount of data meaningless except to a small inner coterie, and very little of present interest to the medical practitioner. However, in one particular segment of study correlation of data from biochemical, histologic, physiologic and electron microscopic sources has given us a whole new understanding of body function; this is the field of iron metabolism.

The iron-binding protein of body cells, *ferritin,* is visible as a regular hexagonal molecule 100-110 Angstroms in diameter, 70-80 Angstroms on a side, with iron molecules arranged at the vertices of an octahedron. The appearance is so characteristic at the enormous magnifications possible in electron microscopy (450,000 X) that the molecules can be recognized with confidence in cells. Normally they are seen in reticular cells, hepatic cells, erythroblasts and intestinal cells; and in iron overload in other cells. When iron is released the *apoferritin* molecule, identical except for the iron, can be visualized.

Hemosiderin, long recognized in routine microscopy as yellow or brown iron containing granules often associated with prior hemorrhage, can now be recognized as a variable mixture of ferritin, apoferritin, lipid materials from erythrocytes and non-ferritin iron.

In the course of destruction of erythrocytes at the end of their active life (about 110 days) ferritin molecules are uncovered. This breakdown occurs normally chiefly in bone marrow although it increases markedly in liver and spleen during disease. The whole process of breakdown of a red cell in a reticular cell into fragments of hemoglobin, then into ferritin and lipid matter is incredibly rapid (about 10 minutes!).

Such reticular (reticulo endothelial) cells are present in the centers of "erythroblastic islands" in the marrow, surrounded by a ring of basophilic erythroblasts, a second ring of orthochromatic erythroblasts, and often a third ring of reticulocytes. Exchange of ferritin molecules appears to occur between the reticular cell and erythroblasts. A process by which the erythroblasts "aspirate" vacuoles, usually containing 5 to 30 ferritin molecules each, has been termed "rhopheocytosis" by Bessis and his coworkers. However, rhopheocytosis is active even in the absence of ferritin in iron-deficiency states; furthermore, iron may enter erythroblasts by another route, that is, directly from the plasma where it is carried by a plasma iron-binding protein, siderophilin.

Certain disorders of iron metabolism can be studied intensively by combined techniques. As would be expected, in iron deficiency ferritin is not present; in hemochromatosis there is increased ferritin in many body cells. A new concept is that of the *hypersideremic anemias.* These include:

1. Thalassemia, in which excessive iron is present in erythroblast cytoplasm and mitochondria;
2. Lead poisoning, in which the mitochondria of erythroblasts are enormously enlarged, probably corresponding to the basophilic stippling seen in smears. A great excess of ferritin is present in erythroblasts, erythrocytes, and reticular cells.
3. Inflammation. Here rhopheocytosis of ferritin molecules by erythroblasts is extreme although there are no aggregates of ferritin recognizable by routine microscopy.
4. *Hypochromic hypersideremic non-thalassemic anemias.* Under this unwieldly term are gathered very rare cases of hypochromic anemia in which the erythroid elements are laden with ferritin which they apparently cannot use to form hemoglobin.

From this very brief review it is clear that our knowledge of iron metabolism and its disorders is making marvellous progress. An excellent review from which much of the above material was abstracted recently appeared in Blood. (Bessis, M. C. and Breton-Gorins, J.; Blood *19,* 635-663, June 1962.)

R. N. B.

Mesmer Revisiting

The past decade or so has seen, on the one hand, a tremendous resurgence of the authentic medical uses of a most valuable therapeutic tool—hypnosis—and, on the other hand, also a resurgence of its prostitution by quacks, charlatans, and fakers.

The present interest in the uses of hypnosis in medicine is but another phase in the curious cycles, alternating between great enthusiasm and almost complete rejection, that have characterized the history of hypnosis since the time of Mesmer, and even before. Hypnotism has been known in one form or another, and used as a means of healing (mainly in a religious setting) by almost all of the major civilizations. Its important medical applications today are in the treatment of psychoneuroses and psychosomatic disorders; and, in selected subjects, for the production of anesthesia or analgesia in surgical, dental, and obstetrical patients.

It will come as no surprise to the thinking physician that fringe groups should seek to utilize hypnosis for their own, rather than patients', benefits. In point of fact, during the last few years these fringe groups have been overdramatizing, overpopularizing and exploiting hypnosis through the press, the radio, and television to the extent that the honest physician is scarcely willing to admit of a nodding acquaintance with the technique. This is an unfortunate state of affairs, for the medical usages of hypnotism are sufficiently important to warrant their continued utilization, when needed, for specific indications.

The misuse of hypnotism is of genuine concern to the medical profession, for these are psychotherapeutic techniques and cannot be regarded independent of psychological medicine. The dangers of hypnotism may be exaggerated in some quarters, but they are nevertheless very real: for hypnosis may involve the development of a relationship between the hypnotist and subject which can release powerful emotions that the inexperienced hypnotist is incapable of controlling if he is ignorant of either the psychological makeup of his patient or the morbid complications of the hypnotic state.

The crux of the matter is that *proper* and *adequate* training must be the sine qua non for the employment of hypnosis by any moral and ethical physician. A plethora of courses is available (including five-lesson, mail-order, correspondence courses!), but centers for training under proper auspices are sharply lacking. As one worker phrased it: "Hypnotic induction can be as readily learnt as the technique for making an abdominal incision. The real problem is what to do . . . after that." If Mesmer's revisitation is to be more than just another phase in the curious cycles of enthusiasm and rejection, the most careful consideration will have to be given to the training of those who wish to use hypnosis for legitimate medical purposes.

D. M. L., Jr.

Estrogens And Atherosclerosis

Does femaleness confer protection against heart attacks during the childbearing years? A wealth of accumulated knowledge both from chemical and experimental sources would seem to make the answer to the above question—yes it does. Under age 40, coronary sclerosis is from ten to forty as frequent in men as in women, and coronary occlusion in women under 40 is virtually unknown.[1] In young women when estrogen production is high, the serum lipid pattern shows a low total cholesteral and cholesterol—phospholipid ratio, a type of serum lipid pattern which is non-atherogenic. Apparently estrogen permits women to handle blood fats more efficiently than men can.[2]

Estrogens can protect males also since the administered hormone has been shown to change significantly the lipoprotein spectrum from an atherogenic to an immune healthy pattern similar to those of the premenopausal female. This can be achieved even though the patient has already suffered a myocardial infarct. When such patients with elevated blood lipid levels were started on small doses of estrogens and amounts gradually increased until the breasts become tender and other evidences of femaleness appeared, their blood lipid levels were lowered to the normal range.[3]

If estrogens protect women against atherogenesis caused by serum lipid abnormalities, then with a decline or disappearance of estrogens in the blood, the incidence of atherogenesis should increase in women. Evidence for this is very strong. The woman who has undergone oophorectomy develops a degree of atherosclerosis by the fiftieth year comparable to that customarily seen in the women of 70.[4] Furthermore in oophorectomized women it is not unknown for them to develop coronary attacks within two years after estrogen deprivation. The woman after normal menopause shows increasing incidence of myocardial infarction. In those that have suffered myocardial infarction, a much lower level of coronary estrogens are found than in those without infarction.[5] The source of these estrogens is probably some residual activity in the ovary as well as some production in the adrenals. In some women apparently the small amount of estrogen production from these sources does help to protect them from atherosclerosis.[6]

When it comes to the male, the story is quite opposite. Young men of 18-29 already have moderate amounts of atherosclerosis in over 70 per cent.[6] From ages 40 to 74, heart disease kills twice as many males in the United States as females, 872 as compared to 473 per 100,000.[1] Furthermore males deprived of the androgenic hormone by castration are not as prone to develop myocardial infarction as are normal males.[7]

These clinical observations are thoroughly supported by data from experiments on animals. Egg laying hens in contrast to roosters of the same age were found to be remarkably resistant to cholesterol induced coronary atherogenesis.[8] Severe atherosclerosis, induced in beagles by interference in thyroid function and administration of an atherogenic diet, showed regression of their atherosclerosis following estrogen therapy regardless of the diet. What was especially striking was that when estrogens were given at the beginning of the experiment, atherosclerosis was prevented.[9]

The lesson to be learned from all this would indicate that estrogens would protect women from atherosclerosis. A study confirming this view[3] was carried out on post-menopausal women who had already suffered a myocardial infarction. Closely matched pairs, one receiving small amounts of estrogens and one not receiving the hormone, showed clearly that those with estrogens had their lives prolonged as compared with those without estrogen. Are we then not remiss in our treatment of the post-menopausal female if we allow them to develop atherosclerosis, when it would appear that this disease can be retarded or prevented by adequate estrogen replacement therapy

With regard to males it is doubtful whether any large numbers could be induced to accept feminization in order to avail themselves of some of the advantages the females have to overcome the atherogenic blood lipid pattern, certainly before they have developed a myocardial infarction, nor even afterwards. Whether or not estrogens by themselves in the presence of quantities of androgens will be protective against atherosclerosis is still a moot question and needs further study. Perhaps a nonfeminizing steriod with anti-atherogenic activity similar to estrogens could be the answer for the male. We must hope that investigators will soon produce one.

It is however necessary to remember that the blood lipid pattern is but one of the factors in the production of atherogenesis, and that other factors such as hypertension, other hormone disturbances, heavy smoking and obesity must also be taken seriously into account.

L.H.N.

REFERENCES

1. Life Table Values and Trends of Life Table Values In Vital Statistic of the United States Volume prepared by the National Office of ital Statistics 1959.

2. Griffith, George C.: The penalty of being a male. Ann. Int. Med., 55: 166, July 1961.

3. Marmorston, J., Lewis, J., Kusma, O., Magidson, O., and Jacobs, R.: Hormonal treatment in arteriosclerotic disease in hormones and atherosclerosis. Academic Press, Inc., N. Y., 1959, pp. 449-466.

4. Griffith, G. C.: Oophorectomy and cardiovascular tissues. Obstetrics & Gynecology, 7: 479, 1956.

5. Marmorston, J., Lewis, J. J., Bernstein, J. L., Sobe,l H., Kuzma, O., Alexander, R., Magidson, O., and Moore ,F. J.: Excretion of urinary steriods by men and women with myocardial infarction. Geriatrics, 12: 297, 1957.

6. Glantz, W. M. and Stembridge, V. A.: Coronary artery atherosclerosis as a factor in aircraft accident fatalities. J. Aviation Med., 30: 75, 1959.

7. Furman, R. H., Howard, R. P., and Imagawa, R.: Serum lipid and lipeprotein concentrations in castrate and noncastrate institutionalized male subjects. Circulation, 14: 490, 1956.

8. Stamler, J., Pick, R., and Katz, L. N.: Inhibition of cholesterol-induced coronary atherogenesis in the egg producing hen. Circulation, 10: 251, 1954.

9. Marmorston, J., Rosenfield, S., and Mehl, J.: Experimental atherosclerosis in dogs in hormones and atherosclerosis. Academic Press Inc., N. Y., 1959, pp. 213-227.

Aortic Insufficiency—Conquered

The concept that an artificial moving functional part can be successfully introduced into the cardiovascular system and maintain permanent function was established in 1952 when a ball-valve prosthesis was inserted in the descending aorta just distal to the left subclavian artery. It is not important now that special methods of insertion were needed to prevent aortic slough or that the regurgitation was prevented only from the trunk and legs. What is important is that it emboldened surgeons to go further and think of repairing the valve itself and to achieve total correction.

In principle to satisfactorily repair the aortic valve one should have a prosthesis of such a nature that it may be inserted in place of the damaged valve, in the same location, anchored properly and then function permanently as the aortic valve did before it became incompetent either from stenosis or regurgitation. To accomplish this one would need first of all a proper valve prothesis. The valve must retain elasticity of the leaflets and at the same time achieve satisfactory ingrowth of tissue for fixation. It must be made of materials into which tissue at its contact at the aortic root can grow and penetrate. At the same time the cusps must remain flexible and sealed to prevent ingrowth of fibrous tissue which would destroy this basic property of a well functioning valve. The valve used by Hufnagel[1] is made of cloth and plastic material, extremely thin and flexible so that the cusps present a minimal resistance to blood flow. At the point of suture to the aortic root there is a reflex edge which provides a self-seal for permanent fixation.

Besides a satisfactory valve, the surgeon must have a quiet heart for long periods of time, effective methods for cardiopulmonary bypass with adequate temperature control. He must have adequate access to the aortic valve in a bloodless field. The quiet heart is achieved by packing it in iced saline and filling its cavity with the same solution. At 46° F. the heart stops and remains so until revived 60 to 100 minutes later. To place the prothesis in the normal aortic valvular position it is necessary to isolate that segment of the aortic root which bears the coronary arteries—accordingly the incision is made in the aorta in such a way that the inferior portion is carried into the non coronary sinus. At this point the surgeon can inspect the aortic valves at leisure, see the anatomic defect that needs correction and determine whether one or the three cusps need replacement. In general, the total replacement of the valve will probable turn out the most satisfactory.

Thus cardiopulmonary bypass, cold cardioplegia, and a refined type valve replacement now enables the surgeon to offer accurate physiologic and anatomic repair of a lesion which was previously hopeless. In the patient with a damaged aortic valve from whatever cause, there is gradual enlargement of the ventricle assorted with inadequate coronary circulation and finally, failure and even sudden death from ventricular fibrillation. With cure of the valve defect now available one should certainly consider surgical correction early in the course of the disease so that the left ventricle can still satisfactorily resume its function following the repair of the mechanical lesion.

One hundred patients have been reported to have been operated upon.[1] In only one did the heart return to function in a weakened state. Two others had difficulty in their cardiac resuscitation following cold cardioplegia and had to stay a much longer time on cardiopulmonary bypass. The vast majority of the other 97 patients went through a phase of ventricular fibrillation. However bringing up the heart temperature slowly to 86°F. Permitted successful defibrillation without difficulty and restoration of a normal blood pressure. From Hufnagel's results it is obvious that the operation is safe and that post-operatively the patients experienced relief of pain, disappearance of dyspena and return of normal symptoms. If possible, one should not wait for heart failure, angina, increasing heart size, diastolic gallop with an Austin Flint murmur or other evidence of progression since such hearts are bound to suffer a higher mortality.

Doubtless modifications of existing methods may be anticipated. Perhaps better methods of cardioplegia than freezing will be forthcoming. Probably better materials for fashioning the prothetic valve will be produced. Certainly better methods of cardiopulmonary bypass are to be expected. The basic principles for the correction of aortic valvular disease has been established. The most difficult valve correction has been successfully achieved.

L.H.N.

REFERENCES

1. Hufnagel, C. A. and Conrad, P. W.: Correction of aortic insufficiency. J.A.M.A., 178: 275, October 21, 1961.

Idiopathic Hyperlipemia And Ischemic Heart Disease

Idiopathic hyperlipemia is an inborn error of lipid metabolism characterized by elevated levels of serum triglycerides, cholesterol and phospholipid. The elevated serum triglyceride level in this disorder imparts a milky appearance to the serum even in the fasting state and differentiates it from the closely allied familial disorder, idiopathic hypercholesterolemia. The probability of a patient with hypercholesterolemia developing a myocardial infarct is three times that of a normal person, whereas the incidence is even higher among patients with idiopathic hyperlipemia. This is because these patients not only suffer from hypercholesterolemia but also from hypertriglyceridemia which itself is directly involved in the pathogenesis of myocardial infarction.[2]

Besides the predisposition to ischemic heart disease among this group suffering from disordered lipid metabolism, the hyperlipemia may be harmful in other ways such as leading to increased blood coagulability, decrease in fibrinolytic activity of the serum, clumping of red cells, impairment of oxygen uptake and even a decrease of myocardial blood flow.

The reason why such patients exhibit elevated blood lipids is not clear. In normal persons there occurs increased lipemia following fat ingestion, but it disappears during fasting. The fact that patients with idiopathic hyperlipemia retain a constantly high level of blood lipids even during fasting suggests of course that the removal mechanism which ordinarily is adequate to clear the blood of its increased lipemia is defective in these patients. What is especially interesting is that patients with ischemic heart disease also suffer to a considerable extent from a poor fat disposal mechanism and also exhibit excessive and prolonged alimentary lipemia. There is an especially close relationship therefore between idiopathic hyperlipemia and myocardial infarction and it is interesting to learn whether there is a disorder of triglyceride metabolism which is common both to patients with idiopathic hyperlipemia and patients with myocardial infarction without idiopathic hyperlipemia. The results of such a study have just been completed.[1] The author utilized a fat tolerance test in four patients with idiopathic hyperlipemia, 15 men aged 43 to 64 who had sustained myocardial infarcts three to six months previously and in 15 healthy middle aged patients 36 to 63. The test was carried out by feeding one half pint of heavy cream, after an overnight fast and withdrawing blood while fasting at 3, 5, 7, 9 and 24 hours after the fat ingestion. In six of the normal and all the other subjects 100 uC of emulsified I^{B1} labeled triolein were mixed with the heavy cream immediately prior to ingestion.

The results confirmed findings that there is in idiopathic hyperlipemia a gross elevation of serum triglycerides without any known cause and this elevation is due to a delayed removal and a delayed breakdown of the fatty acid components. But what is more important was that post-prandial lipid levels in patients with ischemic heart disease also, exhibited a difficulty in removing ingested fat from the blood. Despite the clinical and familial differences between ischemic heart patients and those with idiopathic hyperlipemia they each exhibited similar lipid abnormality suggesting that the mechanism underlying the defective lipid metabolism may be one and the same in both conditions and that any difference between the two are really merely one of degree.

The importance of triglyceride metabolism in ischemic heart disease is now receiving increasing attention. Albrink and Man[2] have emphasized that abnormalities of serum triglycerides were more commonly found in this disorder than were abnormalities of serum cholesterol levels. It may very well be that if serum triglyceride levels were to be measured as extensively as are cholesterol levels that patients will be found which fall between idiopathic hyperlipemia and ischemic heart disease in whom attempts to unburden the fat disposal mechanism should be therapeutically important.

There is no absolute proof that abnormal lipemia is directly involved in the pathogenesis of ischemic heart disease but as mentioned above there is sufficient evidence that the presence of lipemia is potentially harmful. It is therefore rational and desirable to approach this inability to handle fat by employing methods that would help to obtain normal lipid levels. At present we are in the stage of knowledge in fat metabolism that we were in Diabetes before insulin was discovered. Then carbohydrate restriction helped to keep blood glucose levels down. In lipid abnormalities dietary fat restriction should help to keep lipid levels down. There is however one important point to keep in mind. When excess carbohydrates are ingested, even though a low fat content is adhered to, the excess carbohydrate is converted to triglycerides which also tend to elevate the triglyceride blood level. Apparently there is no escape from the need to avoid excess calories regardless of the nature of the calorie source and there is an especial need to reduce calorie intake in overweight people, in whom excess calories not merely burdens the insulin mechanism, but the lipid disposal mechanism as well. The moral is "Avoid obesity, Know your patient". If he has a weak fat disposal mechanism seek to spare it.

L.H.N.

REFERENCES

1. Brown, D. F.: Idiopathic hyperlipemia and ischemic heart disease. Ann. Int. Med., 54: 646, 1961.
2. Albrink, M. J. and Man, E. B.: Serum triglycerides in coronary artery disease. Arch. Int. Med., 103: 4, 1959.

Anticoagulant Therapy Assessed In Heart Patients

Evidence supporting uninterrupted use of anticoagulants in treating heart patients was reported in the recent Journal of the American Medical Association.

The rate of recurrent blood clots in patients with heart disease was significantly lower during continuous anticoagulant therapy than it was after discontinuance of therapy, according to a study by Drs. A. B. Thomes, R. W. Scallen, and I. R. Savage, Minneapolis.

An estimated 803 of every 1,000 patients on continuous anticoagulant therapy would escape a recurrent blood clot during the first five years of treatment, the authors said.

When therapy is discontinued, they said, the rate would drop to an estimated 365 per 1,000 patients during the five-year period following discontinuance.

These findings "strongly favor permanent therapy," they said.

The study also indicated a favorable survival rate among patients on continuous anticoagulant therapy, the authors reported.

At the end of five years of continuous treatment, an estimated 736 per 1,000 patients would be alive, they said, but five years after the discontinuance of therapy the survival estimate would drop to 672 per 1,000.

THE PRESIDENT'S PAGE

President Lowell of Harvard College once wrote that the doctor spent half his life span studying to qualify himself for the practice of medicine and the other half of his life reading to keep abreast of the medical program. He realized how much effort and time was required to prepare oneself for the practice of medicine, and the sacrifices which he and his family made so that he might meet the demands for service calls days, nights, holidays and Sundays. Above all President Lowell appreciated that the dedicated physician was an educated man ready to abide by principles written or unwritten and that physicians endeavored to live by sound precepts regardless of creed, religion and politics. To be sure a few physicians entered the political field to plead their cause.

It seems at the present time that medicare is being sloughed away from the control of medicine into the political field which has little knowledge of medicine. The doctors as a whole have produced the highest standards of health that the world has ever known. We as physicians must expend every effort to maintain this record, keep our capacity on a high level, never relax, and continue to progress so that good medical care can be given to the elderly people and the indigent alike.

Medicare as proposed by the physicians contains humanistic principles and fortunately there is more humanistic consciousness in the world today as exemplified by the aid given to the poor, to the underfed peoples, by the large sums of money granted to hospitals, to old peoples homes, to YMCAs, to the mentally ill, to children's clinics and to thousands of charitable organizations. Insurance companies too, while in competition with each other, are joining in efforts to make it possible for the poorer people to meet their catastrophic illnesses.

Medicare is not, should not, and never should be a political issue from a basic and realistic point of view. People of all classes and ages become ill, regardless of race, color and political stance. Medicare is a universal problem. The International Health Organization represents world consciousness of the problem. The recent vote in Washington where a handful of Democrats, twenty-one in number, joined the Republicans to defeat a political medicare plan which was unreasonable and ill appropriate is a demonstration of the point in view. People are beginning to think and doctors are reading more on the economy of medical care which can be used without financial and mental embarrassment to the individual.

The responsibility of the medical care problem should be left to the physicians who are conscious of the medical problems. Surely physicians are receptive to any help which stems from any good source. Doctors are human and are subject to human faults, but are ready to correct them. A current example is the discovery of the ill effects of thalidomide by a physician. The medical profession has within its association, committees which keep a watchful eye on unsound practices of medicine. To meet the present political issue, COMPAC is being vigorously promoted and should be participated in by every physician in the State of Connecticut to prevent politics from controlling the practice of medicine.

Clyde L. Deming, m.d.

THIRTY-SEVENTH CONNECTICUT CLINICAL CONGRESS

of the

CONNECTICUT STATE MEDICAL SOCIETY

and the

YALE UNIVERSITY SCHOOL OF MEDICINE

Yale-New Haven Medical Center
333 Cedar Street
New Haven, Connecticut

FRIDAY, SEPTEMBER 28, 1962

GENERAL INFORMATION

REGISTRATION:

Registration will begin at 9:00 A.M. The registration fee of $5.00 provides for admission to all sessions of the Congress.

Hospital residents and interns will be admitted without charge, if a statement of their position, signed by an official of the hospital, is presented at the registration desk.

MEETING PLACE:

All sessions will be held in the Mary S. Harkness Memorial Auditorium in the Sterling Hall of Medicine at the Yale-New Haven Medical Center. The entrance is at 333 Cedar Street This comfortable auditorium will accommodate an audience of 450.

TELEPHONE:

Telephone messages will be received at New Haven LOcust 2-1161, Extension 440.

LUNCHEON:

Luncheon for visiting physicians will be available in the Memorial Unit Cafeteria.

PARKING:

Parking area for visitors is adjacent to the Oak Street Connector between York Street and Park Street, behind the Memorial Unit. There are also pay parking lots on Howard Avenue.

The Yale-New Haven Medical Center is about one-half mile west of the New Haven Green. It is easily reached from the Connecticut Turnpike (via Exit 47) or from the Wilbur Cross or Merritt Parkway (via Exit 61).

PROGRAM

FRIDAY, SEPTEMBER 28, 1962

9:00 REGISTRATION

MARY S. HARKNESS MEMORIAL AUDITORIUM

9:30 WELCOME AND OPENING REMARKS:

Clyde L. Deming, New Haven, *President, Connecticut State Medical Society*

Marvin Lillian, *New Haven, presiding*

10:00 USEFULNESS OF CLINICAL CHEMISTRY AND ENZYMOLOGY

David Seligson, *New Haven; Associate Professor Medicine and Pathology, Yale University School of Medicine; Director of Clinical Laboratories*

George N. Bowers, Jr., *Hartford; Clinical Chemist, Departments of Medicine and Pathology, Hartford Hospital*

11:00 THE DISTURBED KIDNEY

Edward H. Kass, *Boston; Associate Professor of Bacteriology and Immunology, Harvard Medical School; Associate Director (Bacteriology) Mallory Institute of Pathology, Boston City Hospital*

Arnold S. Relman, *Boston; Research Professor of Medicine, Boston University School of Medicine; Chief of Renal and Metabolic Division and Visiting Physician, Massachusetts Memorial Hospitals*

John C. Leonard, *Hartford, presiding*

12:00 CLINICAL PATHOLOGICAL CONFERENCE

Benjamin Castleman, *Boston; Professor of Pathology, Harvard Medical School; Chief, Department of Pathology, Massachusetts General Hospital*

Discussant: Stuart C. Finch, *New Haven; Associate Professor of Medicine, Yale University School of Medicine; Attending Physician, Grace-New Haven Community Hospital*

1:00 LUNCHEON

Malcolm M. Ellison, *New London, presiding*

2:00 SHOCK IN INFECTIOUS ILLNESSES

Sheldon E. Greisman, *Baltimore; Assistant Professor of Medicine and Physiology, University of Maryland School of Medicine*

2:45 HYPOTHERMIA—SURGICAL AND MEDICAL APPLICATION

C. R. Stephen, *Durham, North Carolina; Professor of Anesthesia, Duke University Medical Center; Chief, Division of Anesthesia, Duke University Hospital*

3:30 THE GROWING PROBLEM OF SUICIDE

Richard A. Kern, *Philadelphia; Professor of Medicine, Emeritus, Temple University Hospital and School of Medicine; Trustee, Temple University*

4:30 ADJOURNMENT

How Does He Do It?

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Assistant to General Manager

Vox Populi

The other day, we were reading with considerable interest an article titled: "What The American Public Wants In Health Care." Written by Jack C. Haldeman, M.D., an Assistant Surgeon General in the U. S. Public Health Service, and reprinted by the Department of HEW, the piece purports to let us in on what the man-in-the-street is *really* thinking about these days when it comes to how he wants to keep himself sound in mind and in body.

The author, who is chief of the Division of Hospital and Medical Facilities, develops his theme in quite some depth and lists a half-dozen or so items which (he says) are high on the public's priority list of health care "wants." Personally, we were a little taken aback by Dr. Haldeman's opinion that almost every one of the presently unfulfilled desires of Mr. and Mrs. Average in matters medical appears to lie in the institutional area; i.e., "The public wants an intensification of hospital research . . . to improve operating efficiency of the hospital as an organization," to improve "the functional design of the hospital structure," to improve "the coordination of community health facilities with hospitals serving as the focal point," and so on. We found it hard to believe so many people-at-large knew so much about these relatively technical matters.

But, as we read along, we thought Dr. Haldeman presented a weak case if he wanted us to agree with him that all these things have to be accomplished just to satisfy a concerted popular demand for them. Fact is, he got off on the wrong foot with us in the very first paragraph by confessing that "because research in this area has been too limited to provide a scientific answer based on *fact,* each health officer must *conjure up* his own set of measuring devices" if he wants "to be successful in reading the public's collective pulse." Further, says the good doctor, "he may often find the public's wants are not always the same as its greatest needs (But who's to decide, really!)," and so, "with his personal popularity at stake," he must "assume responsibility to lead rather than merely follow public preference."

Some of us have felt for a long time that there's a good deal of that "conjuring up" of opinion among Americans going on these days and not all of it for their betterment, either. Take JFK in Madison Square Garden, for instance, with *his* personal popularity at stake. Or take the example given us (inadvertently?) in the HEW reprint: "Among the most significant principles developed . . . (at the 1959 joint meetings of the American Hospital Association and U. S. Public Health Service) . . . was the need for the general hospital of the future to be as interested in providing outpatient care as it is currently in providing inpatient care," and that "we should plan tomorrow's hospital as the focal point of community health services . . ." and determine "the type or types of leverage needed to implement the plan." This latter determination, by the way, Dr. Haldeman feels to be "a question uppermost in the deliberations of all thoughtful areawide hospital and health facility planners."

Now, that word *leverage* bothered us a good deal, and we kept going back to it as we examined each of the author's ideas as to what the public should have for its own good. Finally, we looked it up in the office dictionary. A lever, we found, is "a rigid bar . . . used to exert pressure; to pry loose or dislodge something firmly fixed." So it gradually dawned on us, at any rate, that what the Assistant Surgeon General really means by leverage is *coercion*—a "rigid bar" of compulsion furnished by some as yet unspecified authority to be used to "pry loose" about 97 per cent of patient care from the private practitioner of medicine, where it is now pretty "firmly lodged," and transfer it to the hospital in its planned future role as "the focal point of community health services."

Well, a difference of opinion is what makes horse racing and, up to now anyway, everyone in our country is entitled to hold and promote his own. But, darn it all, we're still so dad-blamed unsophisticated about things like this that if someone is conjuring up some scheme to force us to change our ways, we think he ought to come right out and say so instead of throwing us nickel curves about "the type or types of leverage" he's going to apply to gain his ends. After all, most of us are old enough to hear the truth without flinching, and we do like to be treated as adults as often as possible.

In a section headed: "Determining The Public Wants," Dr. Haldeman recommends that we consult with a wide variety of public groups and agencies (but not with the public *itself,* apparently!) to find out in what especially pleasing directions the health professions should be moving. One particularly valuable source of such information is our state and national legislators who, he says, can "keep us abreast of popular opinion on health matters." Now, this is undoubtedly sometimes true but—let's face it!—by no means always. We recall the general elections of 1960 and the time we talked with a couple of pretty well-educated fellows who were running for the General Assembly. "How do you men stand on prompt implementation of the new Kerr-Mills Law in our State?", we inquired eagerly, the subject being of considerable interest to us just then. On that occasion, though, the two prospective assemblymen didn't do very much to "keep us abreast" of things—not very much at all. "*What* Kerr-Mills Law?", they asked, practically in unison, and then – quick as a wink – cleverly diverted our attention to their views on financing sewer installations.

Vox populi, indeed!

W.R.R.

"Freedom Of Choice": Does It REALLY Mean Anything?

In America today, if we buy a tin of brand-name baked beans at the store and, for any reason, don't happen to like them, we can buy a different brand next time—in fact, we can choose from a dozen or more varieties of Boston's traditional favorites for Saturday night supper. We may select them in small, medium or family-size containers, with or without tomato sauce, and so on. Truth is, if we aren't entirely satisfied with *any* of the prepared ones, we can always buy the makings uncooked and doctor them up to suit ourselves. All these choices may not be absolutely necessary, of course, but they do assure us of one very important thing—getting the kind of baked beans we want.

Now, who will deny that it might prove more economical, more efficient and less wasteful if our supermarket (we'd only need *one!*) displayed nothing but stacks and stacks of identical No. 10 cans—all of a uniform olive-drab color, all labelled simply: "Baked Beans," all the same price, and all produced by a single manufacturer—the Federal government. Unquestionably, some people would like it that way—especially those who have difficulty making decisions for themselves. But what if a good many found they didn't care for what was inside the cans? What if a large segment of consumers didn't go for the stuff being turned out by bureaucratic beaneries? Would they still have a choice to make? Sure they would! They could either take what they got—and learn to like it, or they could just stop eating beans. It's as simple as that under Socialism.

There are people in Washington nowadays who kind of like this general idea, only they're not talking about peas or corn or carrots—they're talking about medical care. Under the free, voluntary system we have now, nearly every patient can select his providers of medical services to suit himself. He can go to an M.D. or he can go to a faith-healer, whichever he chooses. He can change both his mind and his physician, whenever he wants; for good reason or for no reason. He can buy any one of a hundred different plans to insure himself against most medical costs, and he can switch over to any one of a hundred others if he thinks it's better for him.

But if politicians get mixed up in these very personal areas of living, the picture is bound to change. As with the canned goods we were talking about, everything is likely to become of one kind and one color. A doctor will be a doctor will be a doctor. The patient will no longer be able to tell one from another, and he won't need to because the Secretary of HEW—even though he's thousands of miles away—will tell him which is which, and which he should go to for his ills. As we said earlier, it's as simple as that under Socialism.

And so we ask: Does "freedom of choice" really mean much of anything to Americans anymore? Do they want to preserve it or are they willing to let it pass? We are told this is the basic question they will be deciding in the Fall elections. Maybe, like with our hypothetical federalized baked beans, some will vote for a compulsory, monolithic system of government medicine over what they have now—just to make life's decisions simpler. Maybe some, but we doubt if most will!

W.R.R.

SEMI-ANNUAL COUNTY ASSOCIATION MEETINGS

Hartford, Wednesday, September 19

Rosewood Restaurant, Simsbury

Outing with sports events: 1:00 p.m. Business Meeting: 5:00 p.m.
Social hour and dinner: 7:00 p.m.
Speaker: Mr. Pierre D. Martineau, Director of Research and Marketing for the *Chicago Tribune*
Subject: "Why Is The Medical Profession Being Crucified?"

Fairfield, Wednesday, October 3

Shorehaven Golf Club, East Norwalk

Social Hour: 6:00 p.m. Business Meeting: 4:00 p.m.
Dinner: 7:15 p.m.
Speaker: George M. Fister, M.D., President of the A.M.A., Ogden, Utah
Subject: To be announced.

New London, Thursday, October 4

Norwich Inn, Norwich

Social Hour: 5:30 p.m. Dinner 6:30 p.m. to be followed by business meeting
Speaker and subject to be announced

Litchfield, Tuesday, October 9

East Lawn Country Club, Torrington

Cocktail Hour: 7:00 p.m. Business Meeting: 5:30 p.m.
Dinner: 7:30 p.m.
Speaker: Robert Shaw, M.D.
Subject: "Intestinal Ischemia"

Middlesex, Thursday, October 11

Place of meeting and time to be announced at a later date.

Tolland, Tuesday, October 16

Place of meeting and time to be announced at a later date.

New Haven, Thursday, October 18

Waverly Inn, Cheshire

Dinner: 7:00 p.m. Business Meeting: 2:30 p.m.
Speaker: Maxwell Lear, M.D., New Haven surgeon and a member of the U. S. Department Exhibit "Medicine U.S.A." recently returned from Russia
Subject: "Review of Visit of 'Medicine U.S.A.' to Russia"

Windham, Thursday, October 18

Place of meeting and time to be announced at a later date.

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Clinical Medicine

Benemid, Flexin And Anturane As Uricosuric Agents

Paul H. Lavietes, m.d.
New Haven

Uricosuric agents are effective and valuable in the management of chronic gouty arthritis. By virtue of their renal tubular effects, they cause increased output of uric acid in the urine, lowering the serum level and depleting body stores of urate. This effect gradually mobilizes tophaceous deposits, and can give marked improvement in clinical manifestations.

Indications

There is agreement that all patients who show tophi should be given maintenance doses of uricosuric agents; this includes all patients with chronic gouty arthritis. Individuals who develop gout at an early age are most likely to develop tophi, and therefore uricosuric agents should probably be given to this group even before the appearance of the tophaceous deposits. Beyond these indications there is considerable controversy concerning the time to initiate uricosuric therapy. Some authorities point to the fact that since a fair proportion of patients with gout never develop the chronic tophaceous phase there is no reason to advise even the small risk of toxicity or the significant cost of these agents in such cases. When the disease begins in the late fifties or subsequently, for example, likelihood of development of tophaceous deposits is slight. Others hold that all patients in whom the diagnosis has been established should be placed on uricosurics. Such treatment can probably prevent the development of chronic joint changes as well as acute attacks, and may also serve to prevent the renal changes which otherwise prove lethal to one third to one-half of patients with tophaceous gout. It might even be rational to treat non-gouty patients with hyperuricemia and a family history of gout, since renal changes may occur before tophaceous disease becomes manifest elsewhere. The author favors continuous therapy with uricosuric agents in all patients who have manifest clinical gout and exhibit hyperuricemia.

These uricosuric agents are not useful in treating the acute attack, and indeed some investigators state that the frequency of attacks may be increased during the early months of treatment with them. While some authorities recommend phenylbutazone (Butazolidine-Geigy) as the drug of choice for treatment of the acute attack, the author agrees with those who use colchicine in preference, since it is almost always effective in long clinical usage and has no serious side effects. If colchicine proves ineffective as it may, especially if started late, Butazolidine or ACTH may be used. Colchicine in daily dose of one to three tablets (0.5 mg. each) may be used as prophylaxis against acute attacks and this is advisable during the early months of treatment with uricosuric drugs.

Effects On The Urinary Tract

It is generally, though not universally, held that the incidence of uric acid stones becomes increased when uricosuric drugs are used. Uric acid crystalluria has been demonstrated following a single dose of a potent uricosuric agent even though the patient was drinking increased amounts of water (J. E. Seegmiller and A. J. Grayzel, JAMA, 173:1076, 1960). Renal parenchymal lesions and death in uremia occur in gouty patients without urinary calculi; this is presumably due to crystalluria in the distal portion of the renal tubules. For this reason, large fluid intake, low initial dosage and division of this into 2 or 3 daily doses is recommended. Alkalinization should also be useful, but the practicability of this has been questioned.

The Available Uricosuric Drugs

Probenecid (Benemid-Merck) has been thoroughly evaluated and shown to be a very effective safe agent. Drug rash occurs infrequently; gastro-

Flexin was withdrawn in Nov. 1961 because of hepatotoxicity, justifying the author's reluctance to recommend a new drug where an older one (Benemid) can do the job.

DR. PAUL H. LAVIETES is Attending Physician, Grace-New Haven Community Hospital, New Haven. Associate Clinical Professor, Medicine, Yale University School of Medicine, New Haven.

intestinal intolerance is rare and usually easily overcome by taking the drug with food or antacid; headache and polyuria occur rarely; confusion was noted in one patient after a single dose. Early in the experience with probenecid, dosage was higher than that presently used and toxicity consequently greater. One authority with wide experience states that he has never had to stop treatment because of side effects. (J. H. Talbot, Arth. & Rheum. 2:182, 1959). The drug is extremely effective in reducing serum uric acid in small dose (as little as 0.25 gm. daily) in nontophaceous cases, usually effective in dose of 0.5 gm. twice a day for tophaceous cases, occasionally failing even with 2 or 3 gm. daily in the presence of advanced renal disease.

Probenecid is clearly a very satisfactory uricosuric agent with an excellent record for safety and efficacy. Two new uricosuric agents are now available with action similar to that of prebenecid but much more potent in mg. dosage. Sulfinpyrazone (Anturane-Geigy) an analogue of phenylbutazone, and zoxazolamine (Flexin-McNeil) are very effective in small dosage and reasonably safe, though it is too early to be certain that they are as safe as probenecid.

Side effects thus far reported with sulfinpyrazone are gastrointestinal intolerance, peptic ulcer, renal colic and urticarial reaction; with zoxazolamine gastrointestinal discomfort, urticarial reaction and possible hepatoxicity. Sulfinpyrazone, being a close chemical relative of phenylbutazone, can be expected to induce occasional serious bone-marrow toxicity, but this has not yet been reported. Approximately 200 mg. of sulfinpyrazone or 50 mg. of zoxazolamine has uricosuric effect equivalent to 500 mg. of probenecid. It has been stated that the greater potency of the newer agents will permit successful treatment of patients resistant to probenecid. Acceptable documentation for this is lacking. Probenecid is effective in increasing uric-acid excretion unless glomerular function has been reduced to an extreme degree, at which point it is questionable that any agent working on the tubules will be effective. Safety rather than speed should be the prime consideration in choice of drug for the removal of excess uric acid from the body. It is possible that sulfinpyrazone in dose of 200 mg. twice a day or zoxazolamine in dose of 62½ mg. (¼ tablet) twice a day will prove to be as safe or safer than 500 mg. of probenecid twice a day, in which case the new drugs may prove more economical. Until experience is much greater the only compelling reason to substitute the newer drugs for probenecid is failure to respond to probenecid or to tolerate it. Dosage should be adjusted to bring uric acid into the normal range if possible.

Numerous other drugs influence the renal handling of uric acid significantly. Aspirin in dose of 5 to 6 gm. daily is about as effective a uricosuric agent as 0.5 gm. of probenecid twice daily, but the need for such large doses makes its use for this purpose inadvisable. Other drugs, including the anticoagulants may also be uricosuric. Small doses of aspirin have a reverse effect and as little as 0.6 gm. per day can counteract the effectiveness of other uricosuric agents. Although aspirin in large dose increases excretion of uric acid, its administration to a patient already receiving zoxazolamine results in decreased uricosuria (G. D. Kersley and A. R. Gibbs, Ann. Rheum. Dis. 19: 351, 1960). The thiazide diuretics suppress excretion of uric acid, frequently cause serum uric acid to rise and may provoke acute gouty attacks. Mercurial diuretics may also precipitate acute gout although they increase uric acid excretion and may cause serum uric acid to fall (N. L. Price Lancet 1:22, 1939). This author suggests that such attacks may be secondary to loss of salt and water since loss of salt and water has been shown to precede spontaneous attacks of gout. Drugs used in cancer chemotherapy may also increase serum uric and precipitate gout by increasing the synthesis of uric acid from destroyed tissue. Colchicine, a most effective drug for the treatment of acute attacks, has no demonstrable effect on uric acid in the urine or blood. Knowledge of the above effects is necessary to the interpretation of serum uric acid levels and the avoidance of drug-induced gouty attacks. Phenacetin or acetaminophen (to which phenacetin is rapidly converted) does not diminish uric acid excretion and either may be used in moderation.

A large number of combination drugs have long been available for gout. Since colchicine is effective only in gout there is no reason to use it in any other form of arthritis and the additives have no beneficial effect on gout. A new highly promoted mixture, Triurate (McNeil) includes zoxazolamine, colchicine and acetaminophen. While it may be desirable to use all three of these components in some instances, this is usually not true. In any event, this preparation is not acceptable because of its inflexibility and added expense.

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REPORT OF AMPAC MEETING

Palmer House, Chicago, Illinois, June 24, 1962

At Mrs. Gardner's request it was my pleasure to serve as your representative at the AMPAC (American Medical Political Action Committee) Meeting in Chicago on Sunday, June 24, 1962.

After the usual rush from the train to the Palmer House and the customary long wait at the registration desk, we made our way up to the Grand Ballroom where the Political Education and Action Seminar of AMPAC was already in progress. Consequently, we missed the introductory remarks of Mr. Joe D. Miller, Executive Director of AMPAC.

Donald E. Wood, M.D., a member of the Board of Directors of AMPAC was speaking as we settled down. He soon introduced Mr. C. Joseph Stetler, Director, Legal and Socio-Economic Division of the AMA. Mr. Stetler resolutely hammered away at the point that politics is a "must" for doctors, their wives and their families. We can no longer sit idly by and expect others to fight our battles for us.

As citizens and members AMPAC and our respective state "PAC's" (COMPAC of course in Connecticut), we must engage actively in:

1. *Legislative Activities.*
   (a) By actions influencing pending legislation.
   (b) By statements in the press, over TV or radio.
   (c) By testimony in our legislature.
   (d) By pamphlets and any other suitable media.
2. *Political or Partisan Activities.*
   In this area there are certain permissable activities according to the Federal Corrupt Practices Act and certain decisions of the Supreme Court, who re-wrote this Act to avoid infringement on the First Admendment
3. *Political Education* allows us to:
   (a) Supply information about candidates—their voting record, their present stand, etc.
   (b) Be active in voter registration.
   (c) Get the vote out by offering transportation, baby sitting, etc.

Many times there is a difficulty in distinguishing between Political Activities and Legislative activites; also between Political or Partisan Activities and Political Education. The Federal Corrupt Practices Act and the Hatch Act regulations must be observed. Also do not forget that certain states have their own Corrupt Practices Acts.

Frank C. Coleman, M.D., also a member of the Board of Directors of AMPAC, spoke upon the subject of "Yesterday, Today and Tomorrow." In his address he reminded us that AMPAC started just a year ago; and is here to stay for better government. It has an educational program which will help physician's wives and families to better understand medical politics.

Dr. Coleman stated further that joint action of AMPAC with state "PAC's" is very necessary in engaging candidate support. He stated that the question on whether to support AMPAC in preference to a political party has been asked. He answered it by saying, "Principles, not party labels are most important."

Just how does a candidate receive AMPAC support? This can be best answered by replying that state and district areas have much to say on this—they know the principles of party candidates.

Dr. Coleman concluded by urging doctors and their wives to attend caucuses of their political parties.

Mr. Stephen A. Mitchell, former National Chairman of the Democratic National Committee, made a presentation which was largely on "Citizenship."

He stated our activities should not only be related to getting doctors into politics, but to getting them interested in things both medical and otherwise to create a better image of themselves when they look into the mirror.

Because of the results of better communications such as the radio, T.V., the press, and motion pictures,

1. More people get out and vote.
2. People are more knowledgeable of the events of the day.
3. Moving pictures, such as the AFL-CIO movie put out by COPE, impress people of the needs of a few votes in a given district and show them how to get them out.
4. Group actions are stimulated to get out the vote, i.e., women's clubs, church groups, etc.

Mr. Mitchell also advised that the first thing to do in approaching AMPAC is to recognize Democracy, realize that the Primary is the most important part of an election, and that the individual should be partisan. We in AMPAC and COMPAC disagree with this point, we feel that *principle* overrides partisanship.

He also advised that people get together in their homes and talk politics with their neighbors. The two biggest days before elections are Saturdays and Sundays—this is when the "pros" get their work done. Be active in political activities in the "off season" issues in your community (schools, roads, bridges or any project considered in your community.

Mrs. Earl W. Roles of Kentucky, a member of the Board of Directors, was absent and Senator Thruston B. Morton, United States Senator from Kentucky and former National Chairman of the Republican National Committee, was likewise absent because of an accident.

Malcolm C. Todd, M.D., member of the Board of Directors of AMPAC, closed the morning seminar with an excellent resume.

The AMPAC banquet in the evening of the same day was a gala event in the Grand Ballroom with approximately 1,000 persons in attendance. This followed the afternoon session of the Conference of Presidents and other officers of State Medical Associations.

The principal after-dinner speakers were Representative Harold B. McSween (D-La.) and Senator John G. Tower, the first Republican to be elected to the United States Senate from Texas since Reconstruction days and the only Republican Senator ever elected by popular vote from any of the former confederate states.

The master of ceremonies introduced Doctor Coleman, who in turn introduced Congressman McSween of Louisiana. His subject dealt with the acceptance of reasonable social change. He did agree with us that the Social Security approach to Medical Assistance to the Aged is the wrong one, because it accepts the principle of "too old to work but too young to die." He commended the doctors for the great strides they had made.

Senator John G. Tower (R-Texas) was next introduced. He correctly predicted that "we won't get King-Anderson now" and whether we get one next year will depend on what the doctors do at the grass roots level this fall at election time.

There are those who think we can plan and regulate society. The British have already found that planning is nothing more than unscientific guesswork. Every time government encroaches on a private business or an individual, we get an ordered society. Take a stand against such encroachment if it involves you (as in "Medicare"), or if it involves something else (taxes, foreign or domestic policy), or you will find yourself alone and without friends.

We can make our own opinions without the help of the planners. Politics is everybody's business. We should be politically active—it is our duty and responsibility.

Study groups, stickers, slogans, letters to congressmen are all O.K., but to do a real job we've got to get into politics and elect like-minded legislators. The liberals learned this lesson long ago. "They haven't scraped up their marbles and left the party, if someone is there they don't like."

We need campaign workers, money and precinct workers. This is what we have to furnish. Things have loosened-up a bit, but the ladies do 90 per cent of the work in a campaign—doctors could borrow a page from their book.

Get involved actively as a person in the framework of a party. Bring your contributions to AMPAC or state PAC to a realistic level.

Senator Towers again received a standing ovation with resounding applause at the close of his address.

Dr. Annis' plane had been delayed in its trip to Chicago from Washington and consequently he was not available as a speaker at the banquet.

MRS. ELLWOOD C. WEISE

State Calendar, 1962-63

September 10, 1962—Auxiliary Workshop—New Haven
September 24, 1962—Board Meeting
October or November, 1962—Semi-Annual Meeting
November 26, 1962—Board Meeting
January 28, 1963—Board Meeting
March 5, 1963—Board Meeting
May 1, 1963—Annual Meeting—Hartford

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1962 MEETINGS

Sept. 19—Hartford Chapter of the American Cancer Society. Time and place of meeting not decided yet.

Sept. 28—37th Connecticut Clinical Congress, Mary S. Harkness Memorial Auditorium at Yale School of Medicine, New Haven.

Oct. 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire.

Nov. 6-7-8—New England Postgraduate Assembly, Statler Hilton, Boston.

Nov. 26-29—Clinical Meeting, American Medical Association, Los Angeles.

PLACEMENT OPPORTUNITIES

The Society's Placement Service is in receipt of the following:

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Doctor's Office

Rodman J. Bendett, M.D., announces the opening of an office in association with Julius J. Sachs, M.D., for the practice of internal medicine at 36 Woodland Street, Hartford.

Jerome Bobruff, M.D., announces the opening of an office for the practice of gastroenterology at 14 Broad Street, New London.

Edwin G. Fernand, M..D, announces the opening of an office for the practice of general surgery at 143 Main Street, Danbury.

Ronald S. Fishman, M.D., announces the opening of an office in association with Oscar H. Zarkin, M.D., for the practice of obstetrics and gynecology at 44 Whitney Street, Hartford.

James R. Fitzgerald, M.D., announces the opening of an office in association with Meade J. Luby, M.D., for the practice of orthopedic and traumatic surgery at 11 Central Avenue, East Hartford and 140 Woodland Street, Hartford.

Francis E. Greene, M.D., announces the opening of an office for the practice of psychiatry at 64 Cooke Street, Waterbury.

Bertran Grossman, M.D., announces the opening of an office for the practice of pediatrics at 164 East Avenue, Norwalk.

Francis M. Hall, M.D., announces the opening of an office for the practice of general surgery at 140 Woodland Street, Hartford.

J. Michael Hogan, M.D., announces the opening of an office for the practice of orthopedic surgery at 47 Cooke Street, Waterbury.

Sebastian R. Italia, M.O., announces the opening of an office for the practice of surgery at 85 Jefferson Street, Hartford.

Gerald O. F. Jensen, M.D., announces the opening of an office in association with Douglas Perry, M.D., for the practice of pediatrics at 3 Woodland Street, Bristol.

Thomas R. Kearney, M.D., announces the opening of an office in association with Edward Keelan, M.D., for the practice of psychiatry at 1312 Boston Post Road, Westport.

Raymond J. Keogh, M..D, announces the opening of an office in association with Allan D. Ashcroft, M.D., for the practice of internal medicine at 3557 Main Street, Stratford.

Young W. Kim, M.D., announces the opening of an office for the practice of obstetrics and gynecology at 8 South Main Street, Unionville.

Robert D. Langmann, M.D., announces the opening of an office for the general practice of medicine at One Mill Lane, Farmington.

David E. Lipton, M.D., announces the opening of an office for the practice of traumatic and orthopedic surgery at 36 Woodland Street, Hartford.

Vittorio Mirabelli, M.D., announces the opening of an office for the practice of general medicine at 16 Collins Road, Bristol.

Maria N. Nepomuceno, M.D., announces the opening of an office for the practice of pediatrics at 132 Mansfield Avenue, Willimantic.

John J. Sacco, M.D., announces the opening of an office for the practice of internal medicine at 85 East Avenue, Norwalk.

Lee Sataline, M.D., announces the opening of an office for the practice of internal medicine and gastroenterology at 310 Winthrop Avenue, New Haven.

Stewart Stringfellow, M.D., announces the opening of an office in association with Virginia M. Stuermer, M.D., and William C. Billings, M.D., for the practice of obstetrics and gynecology at 101 Fair Street, Guilford and 100 York Street, New Haven.

William Waskowitz, M.D., announces the opening of an office for the practice of orthopedic surgery at 73 Cedar Street, New Britain.

Information

FEE SCHEDULE CHANGES FEDERAL EMPLOYEES HEALTH BENEFITS PROGRAM

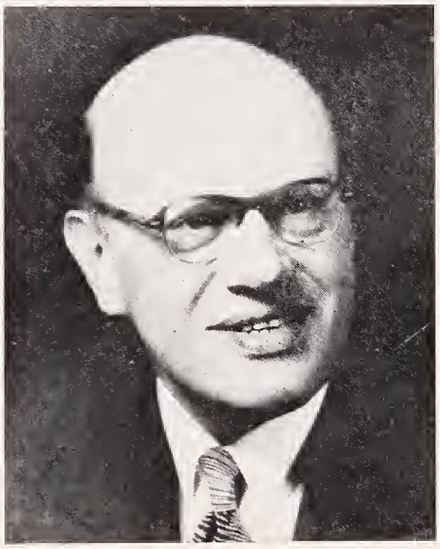
CMS has recently been notified of many changes which have been made in the indemnity fee schedule of the Federal Employees Health Benefits Program, effective June, 1962. We have also been informed of the fact that additional changes will be made effective November 1, 1962 — the Contract anniversary date. In view of the contemplated changes to be made, a revised fee schedule will not be prepared for publication until after November 1, 1962.

While copies of an up-to-date schedule are not available for distribution at this time, notification of this change is being brought to the attention of physicians for their information.

OBITUARIES

Simon Bretzfelder Kleiner
1892 - 1962

Dr. Simon Bretzfelder Kleiner was born in New Haven on April 5, 1892 and died at Grace-New Haven Community Hospital on July 12, 1962 of acute cerebral vascular disease.



He was the son of Isaac L. and Helen Bretzfelder Kleiner. Educated in the public schools of New Haven, he graduated from Yale Sheffield Scientific School in 1911 and Yale School of Medicine in 1915. He began the practice of medicine in his native city in 1916 and interrupted his practice during World War I to serve in the Army where he was a captain in the Medical Corps overseas.

Dr. Kleiner's special interest and skill in proctology did much to promote the status of this speciality in Connecticut and he was recognized nationally for his special work. He was a fellow of the American Proctologic Society and a member of the New York and New England Proctologic Societies. He wrote and delivered many papers in his chosen field. He was associate professor of proctology at his alma mater and was on the attending staff of both the hospitals in his city and others throughout the state.

He was always active in community and organizational affairs where his interests were wide. He was a lifelong member of Congregation Mishkan Israel and for many years was on its Board of Trustees. At the time of his death he was a member of the Hamden Board of Health.

Simon Kleiner was widely known and admired. He loved to be among people. His characteristic chuckle and joke was often heard in the hospital wards and staff rooms.

He is survived by his wife Mary, his stepson Lewis Koplik, his stepdaughter Mrs. Mary Alice Solzman, a granddaughter and a brother Professor Israel Kleiner of New York City. Dr. Kleiner's first wife was the late Regina Wendel.

Bernhard A. Rogowski, m.d.

Carl Jay Hart, M.D.
1897 - 1962

Dr. Carl Jay Hart died on June 17, 1962 at age 82 after a brief illness. Throughout his long and useful life he had retained good health and a keen mind. When he was about 75 he retired from practice and the care of his many devoted patients. They were much helped by his kindly and sympathetic attendance. For many of the physician associates of his later years he was that unusual figure, the congenial and interested elderly colleague who made himself welcome among them.

Born in Unionville, he attended school there and went on to graduate from Hahnemann Medical College in Philadelphia. He practiced 42 years in New Britain, and during much of this time was an attending surgeon on the staff of the New Britain General Hospital. He became an honorary surgeon in 1946.

His career spanned much of the growth and development of the New Britain General Hospital. He knew and worked with a host of colleagues and many generations of house physicians. It is sure that among these he was universally loved and admired as few have been.

John C. White, m.d.

In Memoriam

Glazier, J. Raymond—West Hartford; Harvard Medical School, 1922; retired assistant medical director of Hartford Hospital; active in the medical advisory group of the Hartford Cancer Society and a member of the Community Council; died suddenly on July 19 at the age of 68.

Sanderson, Roy V.—Winsted; University of Vermont, 1920; was chief of surgeons at the Litchfield County Hospital and had practiced in Winsted for 40 years. Dr. Sanderson was medical examiner for Winsted and the town of Colebrook; member of many medical associations, local and national; died suddenly at his home on July 29 at the age of 69.

Special Notices

AMA'S MENTAL HEALTH CONGRESS SET FOR CHICAGO IN OCTOBER

The American Medical Association will hold its first National Congress on Mental Illness and Health in Chicago, October 4-6.

The purpose of the Congress, held with the cooperation of the American Psychiatric Association and the support of the National Association for Mental Health, is to implement the broad, new mental health program developed by the AMA's Council on Mental Health, announced earlier this summer.

The three days of the Congress will be devoted to planning specific activities implementing the AMA program. There will be no formal papers or discussions. Participants will meet in both topical and regional discussion groups to develop coordinated and continuing mental health programs to be carried out at the national, state and local levels.

The topic meetings at the Congress will cover 21 subjects, including research, hospital and community programs, personnel recruitment and physician education.

"The American Medical Association hopes that as many physicians and interested citizens as possible will take part in the Congress," said Dr. Lauren Smith, Philadelphia, chairman of the AMA's Council on Mental Health.

"The AMA also hopes that participants will return to their respective states ready for action," Dr. Smith said.

Planning committee for the Congress is composed of Drs. M. Ralph Kaufman, New York City, chairman; Leo H. Bartemeier, Baltimore, recent former chairman of the Council on Mental Health, and Smith.

NORWALK HOSPITAL DEPARTMENT OF MEDICAL EDUCATION

The Norwalk Hospital Department of Medical Education announces an intensive refresher course entitled "Practical considerations in fluid and electrolyte therapy."

Each of the two sessions will consist of a lecture on general principles; a presentation of selected case studies which will be available to participants in advance, and a question and answer period.

Lecturers will be:

Franklin H. Epstein, M.D., Associate Professor of Medicine, Yale University School of Medicine.

Roy N. Barnett, M.D., Associate Clinical Professor of Pathology, Yale University School of Medicine.

SCHEDULE

Tuesday, October 30, 1962, 7:30 P.M.-10:00 P.M.
Salt and Water

Tuesday, November 6, 1962, 7:30 P.M.-10:00 P.M.
Potassium and Acid-base

Lectures will be held in the Nash Auditorium of the Norwalk Hospital. Admission will be by card only.

Registration fee of $10.00 payable to Norwalk Hospital must be received by October 10th. Mail to Medical Education Office, Norwalk Hospital. Limited to 80 registrants.

HARTFORD HOSPITAL

Saturday Morning 11 O'clock Guest Speakers
September 20 to December 15, 1962

Sept. 29—Raymond Gambino, M.D., Pathologist, Englewood Hospital, Englewood, New Jersey and Assistant Professor of Pathology, Columbia P & S. Subject: "Unsuspected Disturbances in Hydrogen Ion Balance."

Oct. 6—"Workshop on Cancer Research," 9:00 A.M.-1:00 P.M.

Oct. 13—Lester Adelson, M.D., Coroner, Cuyahoga County, Cleveland, Ohio. "Medical Witnessmanship."

Oct. 19-20 (Two Day Visiting Internist)—Roy Hertz, M.D., Chief, Endocrinology Branch, National Cancer Institute, U.S.P.H.S., Bethesda, Maryland. Subject: "Some Instructive Clinical Endocrinopathies."

Oct. 25-27 (Three Day Visiting Surgeon)—Mark M. Ravitch, M.D., Associate Professor of Surgery, Johns Hopkins University School of Medicine. Subject: "Total Gastrectomy."

Nov. 2-3 (Two Day Visiting Ob.-Gyn.)—Christopher Duncan, M.D., Professor of Ob.-Gyn., Harvard Medical School; Free Hospital for Women. Subject: "Operative Gynecology."

Nov. 9-10 (Two Day Visiting Ped.)—Waldo E. Nelson, M.D., Professor of Pediatrics, St. Christopher's Hospital, Philadelphia, Pennsylvania. Subject: "Antenatal Origin of Disease."

Nov. 19—Martin G. Netsky, M.D., Professor of Neuro-Pathology, University of Virginia. Subject: "Medical Experiences in Thailand."

Nov. 24—Seymour Lipsky, M.D., Associate Professor of Medicine, Yale University School of Medicine. Subject: "Arteriosclerosis, Senesence of Society."

Dec. 1—John Moe, M.D., Professor of Orthopedic Surgery, University of Minnesota: Subject: "The Arthritic Hip."

Dec. 6-8 (Three Day Visiting Surgeon)—Claude Welch, M.D., Associate in Surgery, Harvard Medical School. Subject: "Carcinoma of the Colon and Rectum."

Dec. 15—Donald G. McKay, M.D., Clinical Professor of Pathology, Columbia College of Physicians and Surgeons; Presbyterian Hospital, New York City. Subject: "Ovarian Tumors."

CONFERENCE ON FETAL AND INFANT LIVER FUNCTION AND STRUCTURE

The Conference on "Fetal and Infant Liver Function and Structure" will be held at the Henry Hudson Hotel, New York City, November 7, 8, 9 and 10, 1962, under the auspices of the New York Academy of Sciences.

Invitations may be obtained from Mrs. E. T. Minor, Executive Secretary of the New York Academy of Sciences, 2 East Sixty-Third Street, New York 21, N. Y.

Time	*Subject*	*Chairmen*
Wednesday, A.M.	Morphology	J. W. Wilson
Wednesday, P.M.	Physiology	R. W. Brauer
Thursday, A.M.	Chemistry	R. Zetterstrom
Thursday, P.M.	Bile Pigments	R. Schmid
Friday, A.M.	Pathology	I. N. Dubin
Friday, P.M.	Clinical Problems	S. S. Gellis
Saturday, A.M. & P.M.	Workshop	W. S. Hartcroft

AMERICAN RHINOLOGIC SOCIETY

The American Rhinologic Society will hold its eighth annual meeting in the Statler Hilton Hotel, Los Angeles, November 1-2.

The main scientific program will be presented on November 2. Dr. Charles J. Petrillo of New Haven, president of the society, will speak on "Geriatric Rhinology." The founder of the society, Dr. Maurice H. Cottle, professor of otorhinolaryngology, Chicago Medical School, will speak on "The Use of Processed Heterogenous Bone as a Nasal Implant."

Other speakers on the program will be:

Symposium: "Processed Heterogenous Bone," Dr. Kirk J. Anderson, Seattle Orthopedic and Fracture Clinic; Dr. C. Andrew L. Bassett, Columbia University, New York; Dr. Marshall R. Urist, University of California at Los Angeles; moderator—Dr. James A. Dingwall, Squibb Institute for Medical Research, New Brunswick. Dr. Bernard Sarnet of Beverly Hills, Cal., will open the general discussion.

AMERICAN COLLEGE OF CHEST PHYSICIANS ANNOUNCE 1963 MEETING SCHEDULE

The following meetings are planned by the American College of Chest Physicians during 1963:

Seventh International Congress on Diseases of the Chest
sponsored by the
American College of Chest Physicians
New Delhi, India, February 20-24, 1963

29th Annual Meeting
American College of Chest Physicians
Atlantic City, June 13-17, 1963

Interim Session
American College of Chest Physicians
Portland, Oregon, November 30-December 1, 1963

Around The State

Naugatuck Valley Medical Society

A repeat poll of the members of the Naugatuck Valley Medical Society reveals the following results regarding COMPAC (Connecticut Medical Political Action Committee):

Members of Naugatuck Valley Medical Society	51
Pledged to COMPAC	49
Absent on vacation	1
Undecided	0
Not joining	1

This represents a participation percentage of 96 per cent. It is anticipated that the member now away on vacation will undoubtedly choose to join COMPAC and this would produce a final participation percentage of 98 per cent.

AMA To Accredit Postgraduate Courses For M.D.'s In 1964

Formal accreditation of postgraduate medical courses by the American Medical Association is expected to begin some time in 1964, the AMA Journal said recently.

The accreditation program is part of the AMA's efforts to improve the quality of courses available to practicing physicians.

The AMA Council on Medical Education and Hospitals has been working to develop criteria for evaluating programs of continuing education and mechanisms for carrying out surveys and obtaining pertinent information, an editorial in the current Journal said.

A series of pilot surveys has been carried out in a five-state midwest area, the editorial said, and similar surveys are planned on the east and west coasts.

"The results have been encouraging and it is anticipated that experience gained from the additional pilot studies will permit formal accreditation to begin some time in 1964," it said. "Accreditation will probably help to bring about a general improvement in the quality of courses offered."

Continuing medical education for the practicing physician is just beginning to develop as a major educational area, the editorial pointed out, adding:

"More and more physicians are recognizing the need for something other than the traditional means of keeping informed through reading medical journals and attending scientific meetings.

". . . the accumulative volume of the spoken and written scientific word increases each year and it becomes more and more difficult for physicians to avoid being overwhelmed.

"The real need is clearly for better organization, better integration, and better presentation of medical knowledge for the ultimate benefit of the patient.

"What is needed by practicing physicians, in short, is a curriculum or a group of formal courses, organized, concise, clear, up-to-date, and readily available at a convenient time and place."

Appraisal and accreditation of continuing education programs will not be an easy task, but the potential benefits justify the effort which must be expended, according to Dr. C. H. William Ruhe, assistant secretary of the AMA council.

"Accreditation has been an important factor in elevating and maintaining standards in all areas of education," he said. "In medical education, particularly, it has been a means whereby minimum levels of excellence have been defined and required of all undergraduate medical schools and all institutions sponsoring internship and residency programs.

NEW BOOKS IN REVIEW

FINANCING MEDICAL CARE by Helmut Schoeck Editor. The Caxton Printers, Ltd., Caldwell, Idaho, 1962, 314 pp., $5.50.

Reviewed by: DENIS S. O'CONNOR

The financing of medical care has become one of the most controversial matters being considered by the present Congress.

Unfortunately, the matter has become a political issue and the truths of the issue have been submerged in the biased approach and the falsity of the arguments advanced, especially by the proponents of the Social Security method of financing.

The medical profession, which knows only too well the needs of some people for assistance in paying for the care of illness, objects to a single overall compulsory tax to pay for the care of a segment of the population, based upon age but ignoring the need.

The insurance industry, which has approached the problem of financing health care in a statesmanlike manner, knows far better than do the proponents of the Social Security tax approach, that the actual cost to the public—even ignoring the chiselling inherent in a central government program—will be much greater than the voluntary individual insurance and rightly feels that insurance within the means of all but the truly indigent can provide for medical care with full freedom of the individual to choose his own doctors and hospitals.

The average "man in the street" lacking knowledge of the meaning of socialized medicine, compulsory tax supported medicine, and the drawbacks of the socialistic approach to medical care favors the government approach but if he really knew the experiences in the countries having socialized medicine he would at least hesitate to embrace it.

This book is more accurately titled by the subtitle "An Appraisal of Foreign Programs." It considers the medical care systems in seven foreign countries as seen by economists, actuaries, political analysts, physicians, professors of medicine and statesmen—fifteen in all. Each contributor is well qualified to report on the system and the country considered and when one knows the devastating experience in quality of medicine, difficulties of administration, inadequacy of service and unexpected costs one should at least demand of its law makers that the subject of financing medical care be carefully and objectively studied in an atmosphere of calmness before committing a nation, the size and complexity of the United States, to a system of medical care other than what we know from experience to be of the highest calibre.

If medical care is too expensive for those over 65 it is doubtless too expensive for many under 65 and politics being what it is—the extension to other groups is only a matter of time.

So crammed with factual material about so many systems of medical care financing is this book and the opinion of so many well qualified persons to point out the serious deficiencies of the government controlled systems that no review could do justice to it.

For those who really and honestly want to know how prepaid medical systems work and for those who wish to argue the merits of various systems, this book with its documented facts is a necessity.

A paragraph from the preface of the book by Professor F. A. Hayck, University of Chicago, sums up as well as it could be done in one paragraph, the advice to those countries which have not already taken the plunge into government medicine.

> "Published knowledge and convictions are, however, very different in those countries which have had long experience, in some instances of several generations, with any sort of compulsory health insurance or governmental control of the medical services. Certainly, opinions are sharply different in countries where the object of discussion is no longer a hoped for ideal arrangement but an entrenched institution and often one of the most powerful organizations in the nation. If there is one generalization which one can confidently make about those experiments, it is that the results of their adoption differ widely from, and generally fall greatly short of the expectations which led to their adoption. There are so many effects which no one had foreseen that more than in most other fields only the actual experience has opened the public's eyes to the nature of the problems such proposals for government-sponsored medical care systems entail."

I would hope that this book could be carefully read by every doctor, legislator, and person who really wants to know what government controlled medicine will be like before he gives his support to the compulsory tax system of medical care financing which is being forced upon the country, not because it is good for the country but because it will capture the voting loyalty of a segment of the population for a long time without cost, by the political party that can claim the credit for its passage.

POSTPARTUM PSYCHIATRIC PROBLEMS, by James Alexander Hamilton, Ph.D., M.D. The C. V. Mosby Company, St. Louis, Missouri, 1962, 156 pp. $6.85.

Reviewed by: PAUL E. KAUNITZ

The incidence of severe post-partum psychiatric disorder is about one per thousand births, and about one-fifth of these cases go on to chronic incapacitation. The study of post-partum reactions is important from the public health standpoint, since the mother's impairment may serve to foster far-reaching deleterious effects in her children, her marriage, and eventually the community at large. Surprisingly little has been contributed to this subject in the medical literature, probably because cases are observed by the obstetrician, pediatrician and general physician, and rarely by the psychiatrist. We are indebted to Dr. Hamilton for filling this gap in the literature.

This monograph surveys the clinical features and treatment of the various post-partum psychiatric syndromes: (1) the delirium, characterized chiefly by confusion, insomnia and restlessness, (2) the manic and depressive states, (3) the

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dissociative states, and (4) the "transitory syndrome," which refers to the almost universal mild depression and anxiety following childbirth. The above symptoms generally begin between the third and the fourteenth post-partum day, with little indication of previous personality disorder, and many of them undergo spontaneous remission.

There follow sections on anxiety, post-partum sex problems, endocrine relationships, and a comprehensive historical survey of the subject.

Dr. Hamilton is particularly concerned with the post-partum delirium, and feels that it may be attributable in major part to endocrine changes occurring during the puerperium, particularly the apparent thyroid deficit found in most mothers shortly after childbirth. In 1958, he and his co-workers suggested the use of triiodothyronine in the delirium, and reported some favorable results.

Detailed instructions are given for the management of patients with the various post-partum psychiatric disorders.

The chapters on the affective and dissociative states, and on anxiety, bear insufficient relation to the post-partum state *per se,* and draw heavily upon studies of physiological mechanisms. One would have hoped that this emphasis would have been balanced with a survey of psychological and psycho-social data bearing on the post-partum state. There is relatively little emphasis on psychotherapy, and Dr. Hamilton's clinical approach is authoritative and directive, indicating his apparent conviction that an explanation to the patient of the principles of homeostasis and physiology will suffice to ameliorate the impaired psychological adaptation, and for this reason this reader felt that the unique individuality of the patient tended to be relatively ignored. There was little reference to the body of knowledge comprising dynamic psychiatry, which looks upon the psychological state of the patient as a complex shifting product of intrinsic and external factors, determined to a great extent by life experiences.

Except for this reservation, this book is recommended to the psychiatrist as well as the clinician as an excellent historical and clinical review of a subject that has been too long ignored.

ESSENTIAL HYPERTENSION: An International Symposium. Berne June 7th-10th 1960. Sponsored by Ciba. F. C. Reubi, Chairman. Edited by K. D. Bock and P. T. Cottier. 81 figures, 392 pp., Springer-Verlag., Berlin Göttengen-Heidelberg, 1960, 386 pp.

Reviewed by: LOUIS H. NAHUM

The participants in this symposium consisted of about forty scientists from many countries and the program consisted of discussing the pathogenesis of hypertension and its treatment. In the pathogenesis much space is devoted to the possible relationship between so-called essential hypertensions and salt and water metabolism. In the second part devoted to the treatment of hypertension, much consideration is given to the long term effects of antihypertensive therapy as regards the clinical course of hypertensive disease. Certainly sufficient time has elapsed since effective anti hypertensive agents were first introduced to enable a preliminary assessment of the value of such treatment.

Some of the pitfalls awaiting any investigator who invades the vast and complicated field of hypertension became quite clear, and these alone would make it a must for any student of hypertension to read this book. One of the "traps" in experimentation is the effort to determine the adrenal hormone concentration in the urine or blood. The same caution applies to analysis of renin and hypertensin. These several diverging results could be attributed to method alone.

Another difficulty stemmed from seeing but one detailed part of a problem without considering it in relation to the whole. Thus what comes first hypertension or hyperaldosterone, or is arterionecrosis secondary to hypertension or due to excess renin secretion. Another difficulty arises from attempts to take over from animal experiments, conclusions to be applied to man. For example, rates treated with corticosteroids and salt develop hypertension. Does this mean human hypertension is caused by excess salt intake and adrenal secretion? The effect of chlorothiazide is strikingly different when given in one dose intravenously than when administered chronically over long periods. In the first it reduces cardiac output, but over long periods ultimately it leads to a decrease in peripheral resistance.

In hypertension as in science, in general there is always a danger of considering a hypothesis as an accomplished fact. It is true that without a hypothesis the possession of certain number of facts is chaotic. An investigator must fall back on a hypothesis so as to obtain some idea as to the logical direction in which to concentrate his efforts. But once a hypothesis no longer tallies with objective findings, the hypothesis must be replaced or else the investigator is severely handicapped and his efforts doomed for further progress.

The vexed question of salt, the kidney, the adrenals and hypertension was extensively treated. Hyperaldosteronism does occasionally accompany essential hypertension. But in what relationship? The adrenal action is probably secondary. Nevertheless the renin-hypertensin system in relation to the adrenals was fairly well agreed upon. Similarly the relation of salt to every form of experimental and clinical hypertension was also generally accepted. Whether the role of salt is primary or secondary remained unsolved.

Although the diagnostic criteria of malignant hypertension were not generally agreed upon there was universal agreement on the necessity for administering vigorous anti-hypertensive therapy in all cases of severe or malignant hypertension. Nevertheless some patients succumb to vascular complications even though success was achieved by hypotensive agents.

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CARDIOVASCULAR DYNAMICS. Second Edition by Robert F. Rushmer, M.D. W. B. Saunders Co., Philadelphia, Pennsylvania, 1961, 503 pp., $12.50.

Reviewed by: LOUIS H. NAHUM

This is the second edition of a book first published under the title cardiac diagnosis: a physiologic approach. In this book extensive revision of the original text, enlargement and reorganization has taken place. In it one finds the structure, function and control of the components of the cardiovascular system under normal conditions and a consideration of the changes that are induced by the common disease states.

It was the authors intention that this book be of value to all those interested in cardiovascular physiology up to the experienced cardiologist and that it could be used as a supplementary text for courses in physiology, physical diagnosis and clinical cardiology.

The text is not intended as a handbook for the practice of cardiology since the author did not wish to consider in detail all forms of cardiovascular disease. However, he has used basic physiology as a means of illuminating disorders and certain diseased states. For example, the mechanism by which the heart and peripheral circulation are controlled leads to disease states that affect peripheral blood flow. Control of systemic arterial pressure as followed by an exploration of mechanisms responsible for "high blood pressure". Cardiovascular responses in arising lay the foundation for orthostatic hypotension and syncopal reactions.

The pattern is carried throughout the book that normal physiology must be understood to appreciate disease states resulting from its derangements. Thus we find a clear analysis or normal cardiovascular adaptations to exercise as a basis for understanding the limitations in exercise tolerance from various types of heart disease. Consideration of the factors affecting coronary blood flow and its control introduces the problems of myocardial ischemia.

Then there is comprehensive elucidation of the function of the heart valves, heart sounds, and murmurs. The control of the distribution of the blood and of the total blood volume is used to introduce the problems encountered in congestive heart failure. Then are covered the common methods of cardiovascular diagnosis including estimation of cardiac output, pressure recording, electrocardiography, auscultation and evaluation of the size and configuration of the heart.

The author is an M.D. who is now Professor of Physiology and Biophysics at Washington State Medical School, an outstanding authority and a prolific contributor to the field of cardiovascular physiology and has drawn extensively upon his previously published figures in separate contributions of various basic fields. And so one finds many reproductions not too readily decipherable and many complicated drawings, that should worry the beginning students in the field. However, he has performed a real service to the physiologically oriented clinician in making clear that physiology and medicine are not separate disciplines but different aspects of one and the same science.

The book is excellently printed in a two column format for each page. The titles are in heavy caps making the reading easy. Each chapter is followed by a good bibliography which is essential for any student who is stimulated by the text and wishes to read further.

TRAUMA Medico-Legal Volume 3, Number 3, by Hermann Pinkus, M.D., Sidney Olansky, M.D., and James F. Glenn, M.D., Matthew Bender & Co., Inc., Albany, New York, 1961, 116 pp.

Reviewed by: DENIS S. O'CONNOR

A new publication on medicine, anatomy, and surgery for lawyers has recently come on the market and judged by Volume 3, Number 3, the great advantage which doctors have had hertofore in court may be lost to some extent if lawyers who engage in personal injury cases make good use of the material prepared for them in this publication.

Not only well prepared articles on anatomy, as well as clinical entities, which might give rise to legal action, are presented but the publishers make available charts of various areas of the body and also give illustrated definitions of many terms used by doctors which might be used to the embarrassment of the unprepared medical witness.

Bound in boards, on fine stocks, in large clear type and with excellent illustrations, this publication can be a valuable instrument in the hands of the able lawyer and especially so in the hands of the lawyer who seeks to humiliate, or embarass, the opposing medical witness.

For the doctor whose work frequently requires court testimony, subscription to this journal could be a good investment.

OUTLINE OF PATHOLOGY by John H. Manhold, Jr., D.M.D., Professor and Director of Oral Diagnosis and Pathology for the College of Dentistry, Seton Hall College of Medicine and Dentistry; and Theodore E. Bolden, D.D.S., Assistant Professor of Oral Diagnosis and Pathology, College of Dentistry, Seton Hall College of Medicine and Dentistry, W. B. Saunders Co., Philadelphia, Pa., 1960, 340 pp. $4.75.

REVIEWED BY LOUIS H. NAHUM

The authors are attending pathologists at Jersey City Medical Center. The senior Author is Professor and Director of Oral diagnosis and Pathology for the College of Dentistry, Seton Hall College of Medicine and Dentistry and the Junior Author is Assistant Professor in the same department.

The book is a complete outline of the subject matter of pathology. Its intent is to serve (1) The student as a basis for study and (2) the graduate as an adequate recall instrument. When further clarification of conceptual material becomes necessary this compendium will expose to the student his need to turn to his textbook for more detailed knowledge or will directly help to recall his knowledge.

In Part I there is a relatively thorough treatment of the basic pathologic processes such as Nature of disease, etiologic factors in disease, regressive changes, general disturbances of circulation, inflammation and repair, infections, deficiency diseases and disturbances of growth including neoplasia. Part 2 contains systemic pathology covering all the systems. There is an index of 47 pages which is quite all inclusive. The book is well printed with the titles in caps and very easy reading. It is an excellent recall hand book and will certainly be useful to every student of pathology and every physician who realizes that pathology is indistinguishable from medical practice.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26, OCTOBER, 1962, NUMBER 10

Frederick L Dey and Robert A. Merrell — **The Use Of A Plastic Cannula For Tracheotomy In The Infant**

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Samuel Spencer — **Infection Caused By Herrellea Vaginicola**

Fred H. Allen, Jr. — **Standards For Cross-Matching Of Blood**

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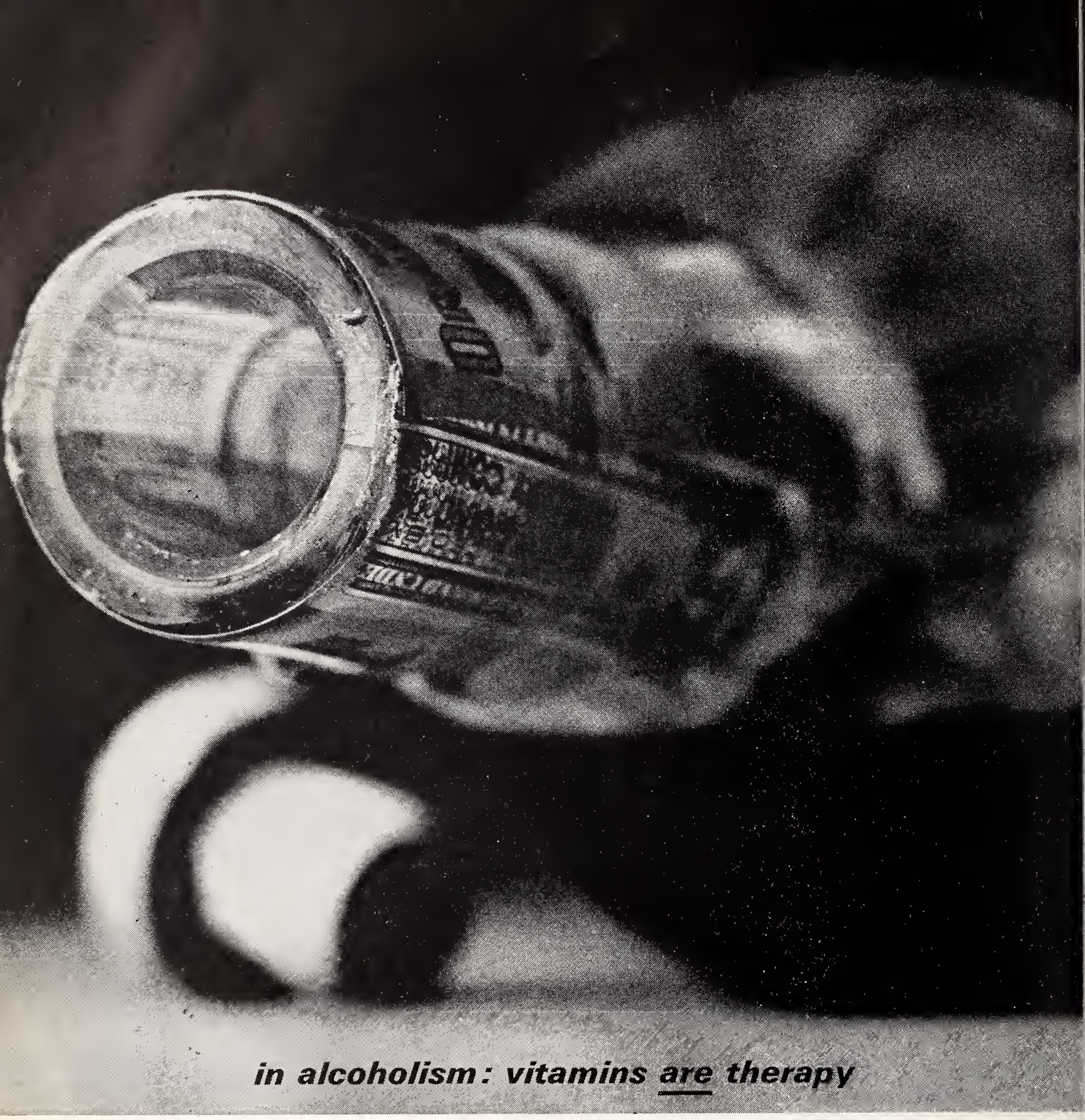

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The Use Of A Plastic Cannula For Tracheotomy In The Infant

Frederick L. Dey, m.d.
Robert A. Merrell, m.d.
New Haven

The indications for performing a tracheotomy have increased markedly in recent years. The procedure is now performed more frequently in the adult for pulmonary secretory and ventilatory problems than for upper airway obstruction. An excellent review of recent literature was presented by Atkins.[1]

Less has been written concerning tracheotomy in the infant. The procedure is still performed more frequently for relief of upper airway obstruction and the problems encountered are unique for this age group.[2,3,4]

Respiratory problems may be encountered in the infant after tracheotomy due to the size and shape of the tracheostomy tube.[5,6] If the cannula does not have the proper curve, it may impinge upon the posterior tracheal wall; if the cannula is too long, it may ride upon the carina or extend into the right main stem bronchus. In either case, obstruction occurs. The size and shape of the infant's neck is so variable that it is impossible to devise a rigid cannula that will prove satisfactory for all infants.

Even successful cannulation of the trachea is usually fraught with difficulties when one attempts to decannulate the infant after the emergency is over. Most infants become dependent upon the cannula and refuse to breathe without it. Many weeks or months may be spent in weaning the child from the cannula.[4]

Recently, we were presented with a small infant who had been tracheotomized early in life in a neighboring hospital. The child had frequent bouts of apnea due to an ill-fitting cannula. Moreover, attempts to decannulate the child were unsuccessful. We were able to solve both problems by substituting a homemade plastic cannula for the usual rigid metal appliance. The tube was made from materials available in most operating rooms. It worked so well, that in our next infant tracheotomy, we used this type of tube by preference. Although our experience is limited to these two cases, we believe that our findings might prove helpful to others with similar problems.

Case History

C. R., an eight-week-old female, was admitted to a neighboring hospital with a diagnosis of croup. Two days after admission a tracheotomy was performed and a OO Jackson tracheotomy tube was inserted.

During the next month, the patient had numerous bouts of apnea due to the position and shape of the tube. Attempts to decannulate the child were unsuccessful.

The child, therefore, was transferred to our hospital for further care. During the next week the 00 Jackson tube was continued. Bouts of apnea were observed and their frequency and intensity increased. We, too, were unable to decannulate the

---

From the Otolaryngology Section, Department of Surgery, Yale University School of Medicine.

Supported in part by USPHS grant BT 440 (C2).

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DR. ROBERT A. MERRELL is Assistant Resident in Surgery, Yale University School of Medicine, New Haven.

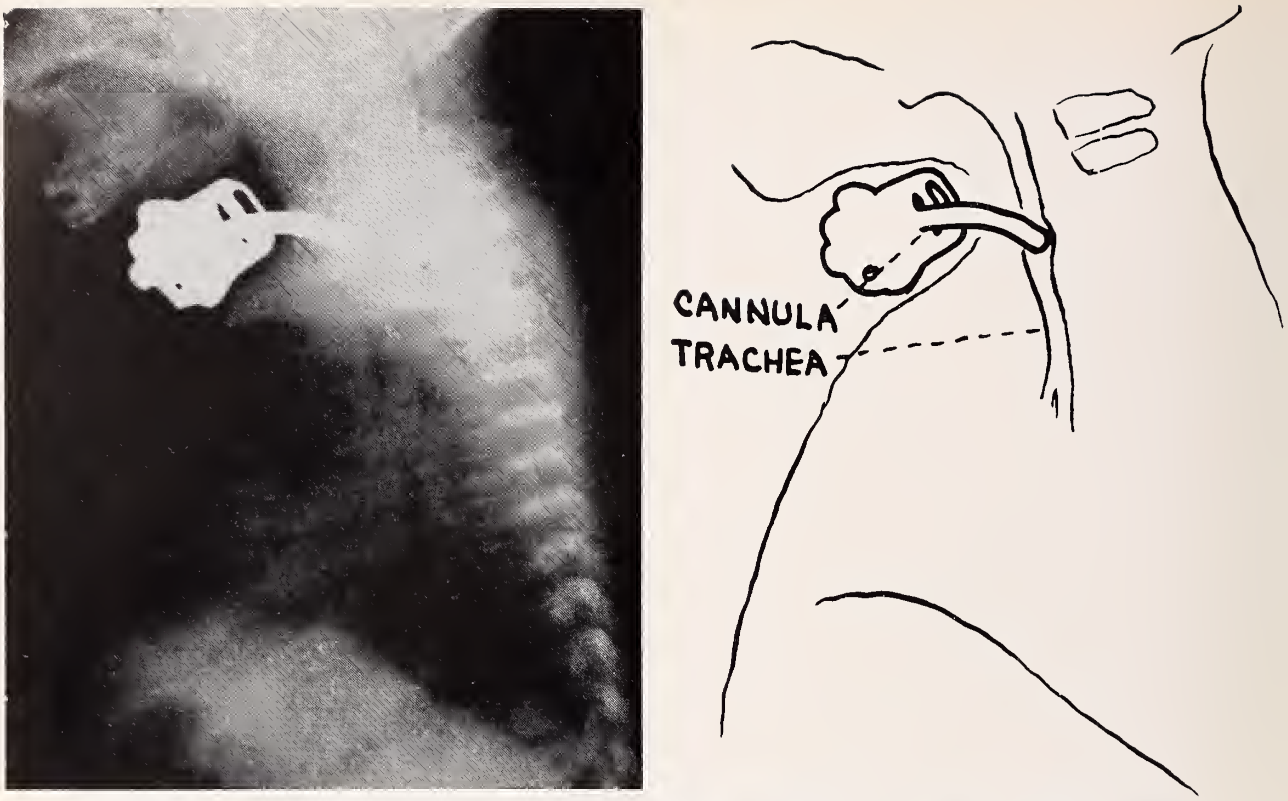


Figure I. X-ray of chest showing tip of metal cannula impinging upon posterior tracheal wall.

child, even though direct laryngoscopy revealed no abnormality of the larynx. An x-ray of the chest (Figure I) showed that the bouts of apnea were probably due to the tube impinging upon the posterior tracheal wall causing occlusion of the lumen. Since a tube with a more appropriate curve was not immediately available, one was constructed as follows:

A O Portex intratracheal anesthesia tube (approximately 3 mm.O.D.) was split at its upper end and the two wings thus created were spread. (Figure II A). A piece of metal finger splint ($1\frac{1}{2}$ x 6 cm.) was bent to fit the contour of the infant's neck (a piece of plastic or even a piece of wood tongue depressor would probably have served as well). A hole, the diameter of the Portex tube, was drilled in the center of the strip and similar holes were drilled at either side for ties. (Figure II B). The Portex tube was then inserted into the central hole and the wings were spread and taped to the metal strip. The Portex tube was then cut to a suitable length—in this instance, approximately 4

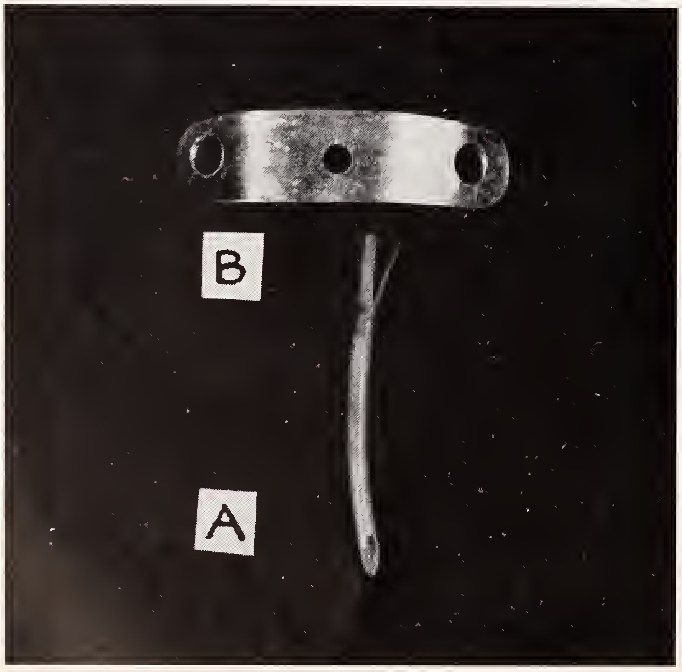


Figure II

A. Plastic tube (O Portex intratracheal anesthesia tube) with end split and spread for securing to metal collar.

B. Metal collar.

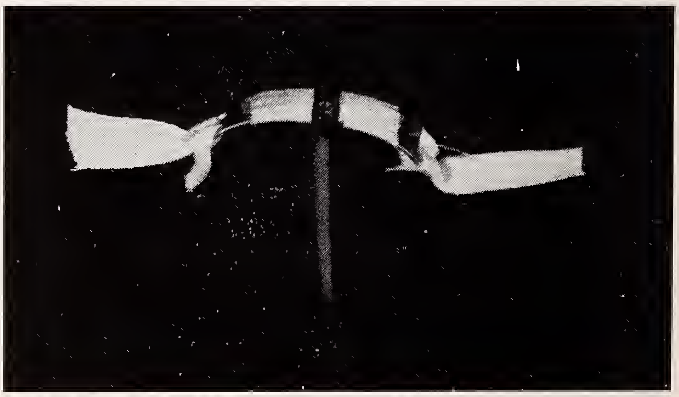


Figure III

Plastic cannula assembled.

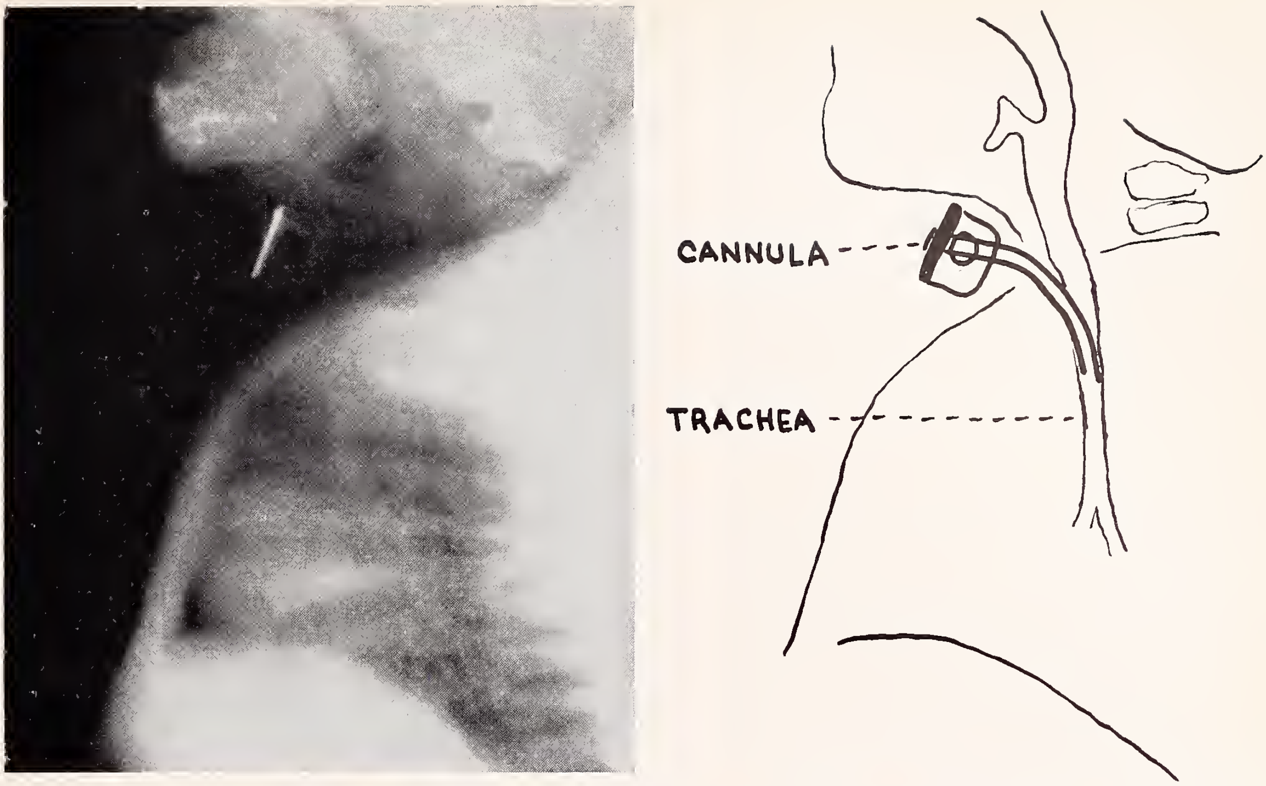


Figure IV. X-ray of chest with plastic tube inserted.

cm. The finished tube is shown in Figure III. An x-ray taken after insertion (Figure IV) illustrates how well this tube fit our patient.

The patient had no further bouts of apnea after the tube was inserted. A No. 5 infant feeding tube was utilized for suctioning the cannula.

We were concerned at first that the tube might become easily plugged since there was no inner cannula. The patient was kept in a steam room for several days and thereafter at normal humidity. The cannula was changed every 1-2 days. No difficulty was encountered with plugging.

No attempt was made to decannulate the patient for several days since it was felt that considerable trachael edema must have resulted from the trauma inflicted by the metal cannula. The diameter of the tracheal tube was then progressively decreased by substituting smaller plastic tubes. The last tube was a No. 5 infant feeding tube. The entire tube was removed two weeks after we first saw the child and the stoma was closed.

Case No. 2

S. P. was a 6 weeks old child who was admitted to the hospital with a history of hoarseness and stridor since shortly after birth. There were multiple hemangiomata of the face, lip and tongue. It was later established that the hoarseness and stridor were the result of a subglottic hemangioma.

Four days after admission, a tracheotomy was performed and a Portex tube, such as that previously described, was inserted. The patient later received x-ray therapy for her vascular lesion.

The patient had no trouble breathing through the Portex tube. The tube was changed daily at first, then every several days. No difficulty was encountered with plugging of the tube with secretions. The secretions did not appear to adhere as firmly to the plastic tube as they do to metal objects.

The patient was extubated with little difficulty 42 days after the tracheotomy had been performed.

Discussion and Summary

Tracheotomy in the infant poses many problems not encountered in the adult. A well fitting cannula can be assured by making the cannula of a flexible material that will conform to the configuration of the trachea without causing undue pressure on the posterior tracheal wall.

The conventional metal cannula is so bulky that when it is plugged the child may encounter difficulty in breathing due to the large tube blocking the trachea. With the cannula that we have described, the bulk of the cannula is significantly reduced so that the child can breathe around the tube. Moreover, by using progressively smaller tubes, the child can be rapidly weaned from the tracheotomy.

The choice of a Portex tube for making the tracheal cannula was a fortunate one since mucus and blood did not appear to adhere to this material as they do to metal cannulae.

REFERENCES

1. Atkins, Joseph P.: Current utilization of tracheotomy as a therapeutic measure. The Laryngoscope, 70: 1672, Dec., 1960.
2. Bigler, J. A., Holinger, P. K., Johnston, K. C., and Schuller, F.: Tracheotomy in infancy. Pediatrics, 13: 476, 1954.
3. Barsky, P.: Tracheotomy in 11-week-old infant with bulbospinal poliomyelitis: case report and brief summary of literature. J. Pediatrics, 44: 445, 1954.
4. Diamant, Herman. Kinooan, Jan, and O'Kmian, Ludwig: Decannulation difficulties in tracheotomized children. Acta Oto-Laryngol. Supplement, 158: 39, 1960.
5. Winter, Artur and Gilmore, Edwin: Prevention of pulmonary complications in infants with tracheotomy by modification of the tracheotomy cannula. N. Eng. J. of Med., 261: 482, 1959.
6. Putney, F. J.: Complications and post-operative care after tracheotomy. Arch. Otol., 62: 272, 1955.

Health, Happiness And Human Values

It is often suggested that a moratorium on science would give mankind the opportunity to search its soul and discover a solution to the problems that threaten its very survival. Although no one is naive enough to hope that stopping the clock would bring about the solution of ancient human problems, many believe that a scientific status quo might prevent or retard the development of new threats. This static formula of survival is not new; indeed, it has been used with much biological success by social insects. Certain species of ants and termites had completed at least fifty million years ago the highly stratified and efficient type of colonial organization which they still exhibit. They have solved many of the problems which are the subject of endless discussions and conflicts in most human societies. Their queens, warriors, and workers all are produced as needed by genetic and physiological control; they have functions which are clearly defined and regulated in terms of the welfare of the colony as a whole. Even problems of eugenics have been solved in these insect societies by confining reproduction to a certain caste and promply eliminating all abnormal and diseased individuals—Dubos, R.: *Mirage of Health,* New York: Harper & Row, Publishers, 1959.

Clinical Evaluation Of Flurandrenolone In Dermatological Office Practice

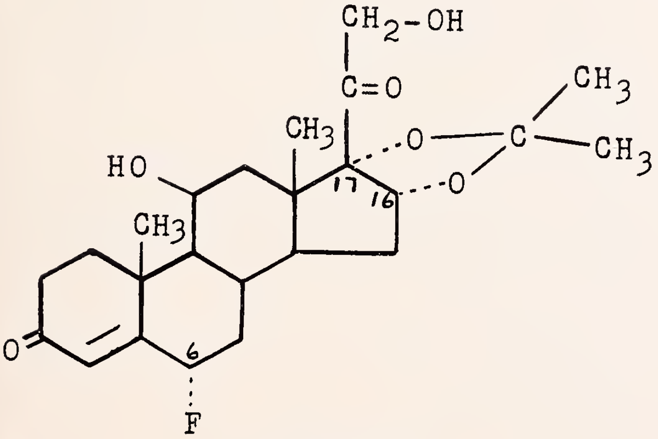
Harold S. Appell, m.d.
Leo W. Koster, m.d.
New Haven

Flurandrenolone* cream, ointment or lotion .05 per cent, with or without, added neomycin sulfate 5 mgs. per gm. were used on 617 private patients with various types of dermatoses in our offices during the period from June 1960 to September 1961.

Chemistry

Flurandrenolone is a new corticosteroid for topical use. It is a colorless crystalline solid with a molecular formula of $C_{24}\ H_{33}\ FO_6$ 6*a*-fluro, 16*a*-hydroxy-hydrocortisone, 16, 17-acetonide with structural formula shown in the figure below.

The vanishing cream base is composed of stearic acid, cetyl alcohol, liquid petrolatum, polyoxyl 40 stearate, ethyl parahydroxybenzoate, glycerin, and purified water. The ointment base is composed of white beeswax, cetyl alcohol, sorbitan sesquioleate, and white petrolatum.



Flurandrenolone

The lotion base is a dilute oil and water emulsion. The pH is approximately 4.7. It is composed of: stearic acid, cetyl alcohol, glyceryl monostearate, lantrol, polyoxyethylene monostearate, methyl parahydroxybenzoate, propyl parahydroxybenzoate, polyethylene glycol 200. The lotion with neomycin contains in addition; triethanolamine and neomycin sulfate.

Pharmacology

Substitution of an alpha fluorine atom for hydrogen at the steroid 6-position, the addition of a hydroxyl group at the 16-position, and formation of an acetonide linkage with the 16, 17 alpha-hydroxyl groups, increase the anti-inflammatory property of flurandrenolone over that of the parent compound, hydrocortisone. At the same time, the salt-retaining property of the parent compound is decreased.[1]

On the basis of thymus involution in adrenalectomized rats, flurandrenolone appeared to have about ten times the oral potency of prednisolone and from fifteen to twenty times the potency of prednisolone injected subcutaneously. In sodium-loaded adrenalectomized rats, flurandrenolone did not cause sodium retention at doses up to 6 mg. per Kg. Instead, a mild diuresis and natrureses occurred. No evidence of increased sodium retention or

---

* Cordran® Material for this study was generously supplied by Dr. Anthony S. Ridolfo, Clinical Research Division, Eli Lilly & Co.

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potassium excretion was noted in a human subject during the administration of 8 mg. daily for seven days in a controlled metabolic study.[3]

In experimental studies on twenty-five normal volunteer subjects, an 0.05 per cent solution of flurandrenolone was more effective than a 1 per cent solution of hydrocortisone in the inhibition of erythema produced by the primary irritant, tetrahydrofurfuryl alcohol.[4]

Studies on Absorption

Controlled studies in a metabolic ward were conducted by Ridolfo, Gray, and Irwin.[5] Measured and analyzed diets were used. Ninety Gm. of 0.05 per cent flurandrenolone cream or hydrophilic ointment, 1 per cent hydrocortisone acetate cream, or 0.1 per cent triamcinolone acetonide were applied daily for periods up to seven days to one group of five patients who had extensive areas of eczematous dermatitis. In a second group of five patients, 45 Gm. of either flurandrenolone cream or hydrophilic ointment were applied daily for equal periods of time. Plasma and urinary electrolytes and corticosteroid levels were measured before and after therapy.

In the patients who were treated with a daily total of 45 Gm. of either flurandrenolone cream or ointment for periods up to seven days, there was no evidence of an increase in sodium retention or in potassium loss. The plasma cortisol levels and the urinary 17-hydroxycorticoids or 17-ketosteroids were not changed. This amount—45 Gm. of cream or ointment—is approximately twenty times the quantity ordinarily used. When as much as 90 Gm. of flurandrenolone, hydrocortisone, or triamcinolone acetonide in creams or ointments was used daily, there was no change in urinary sodium or potassium excretion; but since changes in plasma cortisol levels or urinary 17-hydroxycorticoids occurred, it was indicated that some absorption had taken place.

Rostenberg and Fuller[6] also determined plasma and urinary electrolytes and corticosteroid levels in five patients treated with 15 or 45 Gm. of flurandrenolone cream for periods up to eighteen days. In these subjects there was no change in 17-ketosteroid or Porter-Solber chromogen excretion, nor was there a significant effect on urinary sodium or potassium excretion.

Goldman[7] successfully used flurandrenolone ointment in the treatment, by total body inunction, of many infants and children with severe eczema. He reported that the children so treated showed no clinical evidence of systemic absorption, such as edema, or of untoward reactions, such as secondary infection.

Clinical Studies

Flurandrenolene cream, ointment or lotion .05 per cent with or without added neomycin 5 mg. per Gm. were used on 617 private patients with various types of dermatoses in our offices during the period from June 1960 to September 1961. Thirty patients were dropped from study because of inadequate follow up.

Preparations with added neomycin were used in eruptions where there was an element of infection, or possibility of secondary infection occurring, such as in nummular eczema, infectious eczematoid dermatitis, seborrheic dermatitis, folliculitis, eczematized mycotic infections, herpes simplex and zoster, insect bites, and intertriginous eruptions.

Patients were given adequate supplies to be used topically from 2-4 times daily. Other dermatological treatments such as ultraviolet light, dry ice therapy and medications orally, such as antihistamines and occasionally steroids were used, when indicated.

Table I shows the results obtained in the six most frequently treated dermatoses in the study. Good to excellent results were obtained in 93 per cent of 385 patients with contact dermatitis, neuroderma-

Table I

DIAGNOSIS	NUMBER OF PATIENTS	EXCELLENT	GOOD	GOOD TO EXCELLENT	PARTIAL IMPROVEMENT	NO IMPROVEMENT	WORSE	NO IMPROVEMENT OR WORSE
Contact dermatitis	156	95	56	151	4		1	1
Neurodermatitis	59	34	22	56	1	1	1	2
Atopic dermatitis, including infantile eczema	42	32	10	42				
Seborrheic dermatitis	63	36	24	60	2		1	1
Eczematized mycotic infections	40	13	15	28	11	1		1
Nummular eczema	25	12	10	22	1	2		2
Totals	385	222	137	359	19	4	3	7
Per cent	100	58	35	93	5	1	1	2

TABLE II

DIAGNOSIS	NUMBER OF PATIENTS	EXCELLENT	GOOD	GOOD TO EXCELLENT	PARTIAL IMPROVEMENT	NO IMPROVEMENT	WORSE	NO IMPROVEMENT OR WORSE
Stasis dermatitis	16	10	4	14	2			
Actinic dermatitis	18	17	1	18				
Pityriasis rosea	12	7	3	10	1		1	1
Herpes simplex and zoster	10		10	10				
Infectious eczematoid dermatitis	12	10	2	12				
Dermatitis medicamentosa	11	6	5	11				
Insect bites	12	10	2	12				
Urticaria	10		1	1	6	3		3
Psoriasis	15	1	2	3	2	10		10
Lichen planus	7	3	2	5	2			
Radio-epidermitis following x-ray treatment of epithelioma	26	25		25			1	1
Intertrigo	15	2	11	13	2			
Folliculitis	12		10	10	2			
Lupus erythematosus	6	2	2	4	2			
Folliculitis keloialis	5				4	1		1
Cheilitis	4	1	3	4				
Erythema multiforme	3				3			
Fixed drug eruption	3	1	2	3				
Perleche	2		2	2				
Scleroderma	2				2			
Kaposi's sarcoma	1				1			
Total	202	95	62	157	29	14	2	16
Per cent	100	47	31	78	14	7	1	8

titis, atopic dermatitis, seborrheic dermatitis, nummular eczema, and eczematized mycotic infections. This improvement is superior to that which we have been able to obtain with any other topical steroid preparation.

Many of the patients had been on other topical steroid preparations previously, and in some measure, this served as a comparison study.

Table II shows the results obtained in other dermatoses. The results were good to excellent in 78 per cent of 202 patients. As would be expected, partial to no improvement was found in psoriasis, urticaria, erythema multiforme, and folliculitis keloidalis. Although, flurandrenolone was of little value in ordinary psoriasis, results were good in intertriginous psoriasis. The intertriginous lesions of psoriasis are pruritic and difficult to treat. The good response with flurandrenolone cream makes these patients comfortable and grateful, and represents an improvement over other methods of treatment. Another surprising result to us was the good to excellent result in patients with skin lesions of lupus erythematosus of recent and long duration. The acute inflammatory reaction in eczematized fungus infections responded very well to flurandrenolone with neomycin; that was used prior to use of active fungicidal remedies.

We have found the cream to be the most useful of the various preparations. The patients like the vanishing cream base very much. The ointment is useful in acute eruptions. It spreads well over a large area. Since lotions are drying; when the acute stage is over, it is wise to change to the cream or ointment. Since a few patients may become allergic to neomycin, care must be exercised in its use, and preparations containing neomycin should be discontinued promptly if aggravation of the eruption occurs. Some of few instances, where the patient's eruptions became worse, were due to allergic reactions to neomycin.

Summary and Conclusions

587 patients with various types of dermatoses were treated with the various preparations of flurandrenolone with 88 per cent showing good to excellent result.

385 patients with contact dermatitis, neurodermatitis, atopic dermatitis, seborrheic dermatitis,

nummular eczema, and eczematized mycotic infections, showed good to excellent result in 93 per cent of the cases. Flurandrenolone showed its best effects on the above listed types of dermatoses.

We have found Flurandrenolone superior to any other topical steroid in the treatment of various types of dermatoses. The cream was the most useful preparation. The ointment was better in dry, scaly, and hyperkeratotic eruptions. The lotion was useful in acute eruptions. Preparations with neomycin were used where secondary infection was present or might occur.

REFERENCES

1. Mills, J. S., Bowers, A., Campillo, C. Casas, Djerassi, Carl, and Ringold, H. J.: Steroids. CXVII. 6*a*-Fluoro-16*a*-Hydroxy cortical hormones. J. Am. Chem. Soc., 81: 1264, 1959.

2. Kraay, R. J.: Investigative data, to be published.

3. Irwin, G. W. and Ridolfo, A. S.: Investigative data.

4. Gray, H. R., Wolf, R. L., and Doneff, R. H.: Evaluation of flurandrenolone, a new topical corticosteroid. A.M.A. Arch. Dermat., 84: 18-21, July, 1961.

5. Ridolfo, A. S., Gray, H. R., and Irwin, G. W.: Absorption studies of a new steroid, flurandrenolone, to be published.

6. Rostenberg, A., Jr.: Clinical evaluation of flurandrenolone, a new steroid, in dermatological practice. J. New Drugs, 1: 118-121, May-June, 1961.

7. Goldman, L. and Cohen, W.: Total body inunction as topical corticosteroid therapy, to be published in A.M.A. Arch. Dermat.

"The patient is to be informed of the seriousness of his affliction but nothing shall be done to aggravate his physical illness or to compromise his life. These matters should not be discussed in the presence of uneducated people, or women and children lest they weep and break his heart, as the end of life approaches.

"The mention of death is to be altogether avoided so as not to make the patient aware of the seriousness of his condition and thus sap his strength!" —Rabbi Jacobovits, *Jewish Medical Ethics.*

Infection Caused By Herrellea Vaginicola

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SINCE the original description by De Bord,[1] in 1939, there has been an increased recognition of human infections caused by the mimeae group of organisms. Unfortunately many of the reports are scattered through the bacteriological literature[2,3] and not readily available to the physician.

These organisms have been isolated from the urinary tract, and also from the blood, spinal fluid, soft tissue, and other body specimens. It is rather significant that while they may be morphologically identical to the Neisseria group, the Mimeae organisms are not sensitive to the commonly used antibiotics. Therefore, it is extremely important to identify these organisms correctly and to use the most effective antibiotic in each instance.

A case of an abscess caused by Staphylococcus with superimposed infection due to Herrellea vaginicola is described.

A 37 year old white Italian sailor was admitted to Bridgeport Hospital, March 16, 1961. Onset of infected right thumb was March 6, 1961. The infection grew steadily worse despite 3,000,000 units of penicillin. The entire digit became markedly swollen and excruciatingly painful. March 11, 1961, a shipmate used a pocketknife to make a mid palmar incision of the thumb. This procedure gave no relief.

On admission to the hospital, the patient was in obvious pain. The thumb was swollen and grayish. The entire digit was widely decompressed: there was little thin serosanguinous discharge, and the deep tissue was necrotic.

Since there had been no response to penicillin, the patient was given erythromycin (1500 mgm. daily). Three days later, the laboratory reported a Staphylococcus aureus, coagulase positive (sensitive to erythromycin, tetracycline, and nitrofurantoin). The bacteriologist noted a gram-negative rod which could not be identified; a specimen was sent to the Connecticut State laboratory. March 21, 1961, the latter organism was reported to be sensitive to tetracycline and nitrofurantoin.

The thumb was treated locally with saline compresses. While on erythromycin for a period of 5 days, there was no improvement in the appearance of the thumb; swelling of the palm was noted; x-ray revealed a progressing osteomyelitis and resolution of bone of the distal phalanx.

After receiving the report from the hospital laboratory, the patient was placed on tetracycline and the depths of the open areas packed with Furacin ointment. Within 48 hours, the finger began to lose its swollen necrotic appearance and take on a pinkish color. Repeat x-rays now showed no more progression of the osteomyelitis. The thumb gradually began to return to normal with complete clearing of all pain and swelling. There was a small residual sinus arising from the proximal end of the distal phalanx. March 31, 1961, the State laboratory submitted a report identifying the gram-negative rod as Herrellea vaginicola. Repeat bacteriological studies revealed absence of Herrellea organism but the persistence of Staphylococcus (now resistant to tetracycline).

The onset of an acute pancreatitis, April 3, 1961, forced the cessation of all oral medication: sudden severe epigastric pain and tenderness, nausea and vomiting, serum amylase increased from 80 to 280 units within 18 hours. The patient refused all parenteral therapy. After 7 days, he made a complete recovery from the bout of pancreatitis; gall bladder study was found to be normal. There was excellent motion of the thumb but still a small draining sinus. The patient was returned to Italy on April 14, 1961.

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Discussion

De Bord proposed the name, Mimeae, (to mimic) for this group of organisms because of their morphological similarity to the Neisseria group. He described 3 genera with the following common features:

a) pleomorphism with the diplococcal form predominating on the solid medium and a more even distribution of cocci, rods, and filaments in liquid media;

b) modified bipolar staining;

c) gram-negativity with partial return of positivity and encapsulation.

The fermentation reactions varied; on this basis 3 genera were designated: Mima polymorpha which does not ferment carbohydrates; Herrellea vaginicola which produces acid with glucose, galactose, xylose, arabinose, and Colliodes anoxydana which produces acid and gas with glucose, maltose, lactose, mannitol, and dulcitol and reduces nitrates.

A review of the literature reveals but 9 cases in which members of the mimeae tribe have caused serious and often fatal infections in man: meningitis, endocarditis, and septicemia.[4] These organisms have been associated with a variety of other human infections; the pathogenesis of these strains has not been clearly defined,[7] Mimeae have been found in 24 cases from a group of 57 normal conjunctivae and vaginae; apparently these organisms are widely distributed in human tissues.[2] It has also been isolated from river water.[5]

The sensitivity of these organisms has not been clearly determined due to infrequent clinical reports.[6] In general, the majority of strains have been found sensitive to oxytetracycline and chlortracycline, but resistant to penicillin, erythromycin, streptomycin, and chloramphenicol.[6-8] Therapy—resistant cases of infectious meningitis, and gram-negative intracellular diplococcal urethritis and cervicitis may be due to the wrong antibiotic resulting from an error in diagnosis. Obviously, morphological identification only is not adequate.

Summary

A case of infection caused by Herrellea vaginicola superimposed on Staphylococcus aureus abscess is described.

The close morphological resemblance to the Neisseria organisms is emphasized.

The frequent resistance to the commonly used antibiotics demands adequate sensitivity studies to determine the proper antibiotic.

REFERENCES

1. De Bord, G. G.: Organisms invalidating diagnosis of gonorrhea by smear method. J. Bact., 38: 119, 1939.

2. De Bord, G. G.: Species of tribe Mimeae, Neisserieae, and Streptococceae, which confuse diagnosis of gonorrhea by smears. J. Lab. and Clin. Med., 28: 710-714, 1943.

3. Weed, L. A.: Mimeae—a problem in diagnosis and taxonomy. Am. J. of Clin. Path., 35: 447-448, 1961.

4. Olafsson, M., Lee, Y. C., and Abernethy, T. J.: Mima polymorpha meningitis. New Eng. J. of Med., 258: 465-470, 1958.

5. Kenner, B. A. and Kabler, P. W.: Members of tribe mimeae isolates from river. J. Bact., 72: 870, 1956.

6. Mintzer, A.: Human infection caused by the mimeae organisms. Arch. of Int. Med., 98: 352-355, 1956.

7. Deacon, W. E.: Note on tribe mimeae (De Bord). J. Bact., 49: 511, 1945.

8. Ransmeier, J. C., Brown, H. E., and Davis, N.: Comparison of *in vitro* sensitivity of freshly isolated pathogenic bacteria to terramycin and other antibiotics (aureomycin, chloramphenicol, penicillin and streptomycin). J. Lab. and Clin. Med., 38: 620-630, 1951.

Humanity has but three great enemies, fever, famine, war; and of these by far the greatest, by far the most terrible is fever.—William Osler, *Aphorism of William Osler.*

Standards For Cross-Matching Of Blood

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THE purpose of a cross-match is to prevent an immediate hemolytic blood transfusion reaction. The cross-match test itself is in essence a test for antibodies in the serum of the recipient (major cross-match) or in the serum of the donor (minor cross-match). As a screening test for antibodies the routine cross-match is quite inefficient, of course, because one chooses donors expected to be compatible, and one ordinarily cross-matches only one or two donors who presumably do not have a very good assortment of blood group antigens. Obviously, a negative cross-match test does not prove that there are no antibodies present. There may be antibodies present but the blood being matched does not have the corresponding blood factor. The cross-match test does not do everything one might wish, and the most important thing it fails to do is to prevent sensitization to blood group factors. This can only be done by blood typing and selection of compatible types.

Blood Typing

Blood typing is done for two very important reasons. It is an aid to the cross-match test to insure that a recipient will not have an immediate severe hemolytic transfusion reaction, particularly, a reaction due to ABO incompatibility. One would hate to have to rely entirely on the cross-matching to select bloods that were ABO compatible. The second major use of blood typing is to prevent sensitization to those other blood factors that are thought important enough to warrant routine selection of compatible donors. Rh is the one blood factor besides A and B that clearly has this much importance. Table I lists the blood group factors for which distinct antibodies have been found. The number is appalling and it is growing continuously. It is the despair of transfusionists and the delight of immunohematologists whom it keeps in business. Of this long list of blood factors only three, A, B and D, are surely important enough for routine blood typing procedure. Table II gives some figures that bear this out.

Blood Group Antibodies

Table II is a list of antibodies which have been seen at the Blood Grouping Laboratory of Boston

TABLE I

BLOOD GROUP FACTORS IDENTIFIABLE WITH SPECIFIC SERUMS

SYSTEM	FACTORS*
1. ABO	A (.45), B (.14), H (.54)
2. MNS	M (.79), N (.71), S (.55) s (.89), Hu (rare), He (rare) Mi^a (rare), Vw (rare), U (almost universal), M^g (very rare), Vr (rare)
3. P	P (.79), Tj^a (almost universal), p^k (rare)
4. Rh	D (.84), C (.70), c (.80), C^w (.01), C^x (rare), E (r30), e (.98), E^w (rare), f (.64), G (.85), V (rare), rh_i (.70), Hr_0 (almost universal)
5. Lutheran	Lu^a (.08), Lu^b (.998)
6. Kell	K (.10), k (.998), Kp^a (.02), Kp^b (.9998), Ku (almost universal) (.9999)
7. Lewis	Le^a (.21), Le^b (.75)
8. Duffy	Fy^a (.65), Fy^b (.83)
9. Kidd	Jk^a (.77), Jk^b (.73)
10. Unclassified	Levay (rare), Vel (almost universal), Ven (rare), Wr^a (rare), Be^a (rare), Rm (rare), By (rare), Yt^a (.996), Js (rare), Di^a (rare), I (almost universal), Sw (rare)

*Numbers in parenthesis indicate approximate frequencies in populations of European origin.

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TABLE II

SENSITIZATIONS TO VARIOUS BLOOD GROUP FACTORS SEEN IN 5 YEARS AT BLOOD GROUPING LAB, BOSTON

D	7150	M	14
G (CD)	975	e	12
K	56	k	10
E	54	C^w	6
c	53	Kp^a	6
Fy^a	26	S	5
C ("pure")	14	Lu^a	4
Jk^a	14	Kp^b	4
		D (in Rh$^+$ persons)	4
Le^a	many	P	many
Le^b	many	H	many
M$_g$	common	Wr^a	common
V^w	common	S^w	common

Antibodies shown below the line, though common, are statistically of little clinical importance because of the rarity of some of the antigens (M$_g$ has been found in only one family, but not in 50,000 unrelated people) and the rarity of high titered antibodies. They are spontaneously occurring antibodies, like anti-A and anti-B, and most of them are "cold agglutinins." They may cause unexpected incompatibility on crossmatch test, and, when so detected, should be identified by special investigation. Since severe transfusion reactions have been caused by some of them (especially anti-Le^a and anti-P), they should not be ignored when they are encountered.

over a five year period. Approximately 7,000 cases of sensitization to D were seen, and nearly 1,000 cases of sensitization to G, which is the blood factor detected by anti-CD (anti-Rho'). The G factor is distinct from blood factor C and is much more antigenic than C, as indicated by general experience and by the figures in Table II.

The next most common antibody seen during this five year period was anti-K with only about one hundredth the frequency of anti-Rh. The Blood Grouping Laboratory receives a good many specimens that are referred because they are problems. Anti-Rh is seldom a diagnostic problem and the laboratory gets few referred cases of anti-Rh, but many of the cases of anti-D were referred. The actual number of anti-K antibodies seen is thus exaggerated as compared to what one would expect in the average hospital practice, and therefore K is probably less important in comparison with Rh than would appear from these figures.

The next most frequent antibody was anti-E, with 54 found in the five year period. Anti-c was found 53 times in five years, and anti-C only 14 times in five years, indicating that blood factor C itself is one of the less antigenic factors.

The frequency with which an antibody is found depends partly on the frequency of the corresponding antigenic blood factor. K is a rather uncommon blood factor so one expects to find anti-K with somewhat less frequency than one would find, for example, anti-E. The chance of exposure to E is more than twice the chance of exposure to K in routine transfusion practice and yet one sees about as many cases of sensitization to K as to E. This means that K is undoubtedly more antigenic than E, which is of some importance. Nevertheless, the real importance of the various blood factors, so far as routine procedures are concerned, depends on the frequency with which the corresponding antibodies are seen.

Going on down the list, through Fy^a, Jk^a, k, etc., one finds no clear difference in importance between any one blood factor and those just above or below it in the list. If one should decide, for example, that K should be tested for routinely, in order to protect K-negative persons from sensitization to K, there is no clear reason why he should not test for E and if he tests for E there is no clear reason why he should not test for c, because the difference in importance between these is very slight, and so it goes right down to the end, where finally one would be reduced to the ridiculous state of testing Rh-positive people to see which of them might be able to form anti-Rh. We have seen four Rh-positive people who have actually formed Rh antibodies due to the fact that they lack a fraction of the Rh antigen. One must draw a line somewhere and the only logical place to draw it is before coming to blood factors K, E, and c. One might well say that blood factor G (CD) is not quite of sufficient importance to warrant routine testing. But one thing can be said for G: there is a big gap between it and the next most important one, so that G could be tested for without one's then being forced by logic to go on and test for all the other blood factors.

Routine Typing

For routine transfusion purposes, both recipients and donors must be tested with anti-A, anti-B and anti-Rh. Apparent Rh-negative donors should be further tested with a strong anti-D using the indirect Coombs method to be sure that these donors are not of the Rh variant type (D^u). There is some question about routinely retesting Rh-negative donors with anti-G (anti-CD). There are cogent arguments against it, though it has been routine for many years in most blood banks. I would not quarrel with anyone on this subject. One other thing that should definitely be routine is to test the serum of both donor and recipient against known type A and type B bloods for confirmation of the direct ABO grouping.

If one does only this much blood typing as a routine, and I strongly recommend that this be all that is done routinely, one must be willing to accept the risk of sensitizing the recipient to blood factors C, or E, or K, etc., etc., when blood transfusions are given. It is not proper to attempt to protect recipients from sensitization to these other blood factors on a routine basis. There are cases such as hemophilia and aplastic anemia in which many transfusions will be given over a span of many years. Those with aplastic anemia will not be making any blood of their own and once they are thoroughly transfused it will be nearly impossible to determine what their own blood types are and what bloods might most likely be compatible. In such cases blood typing before the first transfusion should be as thorough as one can do. Then it is possible to pick a panel of compatible donors and try to use only them. For routine cases, I urge you not to do anything beyond A, B, and D, (and perhaps G), blood typing.

Routine Cross Matching

For routine cross-match procedure the major match should consist of two tubes, the first a drop of the patient's serum and a drop of 2 per cent saline suspension of the donor's red cells, this tube to be incubated at room temperature for 20 minutes and then centrifuged and examined for agglutination or hemolysis. The value of this test is two-fold: anti-A and anti-B are cold agglutinins and a weak anti-A or anti-B is picked up much more readily at room temperature than it is at 37° (and for some reason, it is more readily picked up when the cells are saline suspended, than when one uses high protein medium). The second reason for using this room temperature cross-match is that certain other antibodies, particularly anti-Le^a, are more active at room temperature than at 37°. Anti-Le^a is not an antibody of major importance, but it has been responsible for rare, usually non-fatal, hemolytic transfusion reactions. This antibody may be also a hemolysin; therefore one must never forget to look for hemolysis as a manifestation of blood group reaction, as well as for agglutination.

The second tube that is recommended for major cross-match should be incubated at 37° in the water bath. This tube should contain a drop of the recipient's serum and a drop of the donor's saline-suspended (2 per cent) red cells: after incubation for at least 20 minutes, if possible, and centrifugation, and examination for agglutination, 20 per cent bovine albumin should be used to replace the saline (if the original examination showed no agglutination), the tube recentrifuged and examined for agglutination, and if still negative converted (with at least 3 washings in large amounts of saline) to the indirect Coombs test and again examined for agglutination. If the preceding description sounds like the incantations of a witch, you must understand that the techniques of blood grouping are still in the witchcraft stage. Anyone who discovers how all these things work to produce a clinically accepted answer will be an obvious candidate for a Nobel prize. An alternative to this technique is to begin with a drop of a suspension of the donor cells in his own serum or in 20 per cent albumin, added to a drop of the recipient serum, thus by-passing the first stage of the test.

Hospitals should now be satisfied with nothing less than the indirect Coombs test as a final check on the major cross-match for routine transfusion. It is important, however, that this indirect Coombs test cross-match be done with a good Coombs serum, one that will cause agglutination of Fy^a-positive cells that are sensitized with anti-Fy^a. For some reason, Coombs serums that give excellent agglutination of Rh-sensitized red cells may give no agglutination with Fy^a-sensitized red cells. Since N.I.H.-approved Coombs serums are required only to react well with Rh-sensitized cells, there is no guarantee that a commercial Coombs serum will detect anti-Fy^a in the cross-match test when the donor is Fy^a-positive. This is a matter of importance. Anti-Rh is of only minor importance in the cross-match, since Rh compatible blood will normally have been selected by means of direct typing test. Possible serious incompatibility for Fy^a (or Jk^a or K) will not usually have been detected by typing test since proper routine does not include such typings. The Coombs serum should, therefore, be of such quality as to detect anti-Fy^a and similar antibodies. Standardization of Coombs serum should eventually include tests to demonstrate the ability of the reagent to cause agglutination of Fy^a-sensitized, or similarly "difficult", cells.

Though recommending the minor cross-match, I am not sure that this is necessary as a routine. Serious reactions caused by antibodies in the blood of the donor have been reported rather rarely. Data on this point are not as good as the data on reactions caused by antibody in the blood of the recipient. Undoubtedly, a good many transfusions have resulted in a net loss of circulating red cells because of destruction of recipient red cells by donor antibody. Until I know more about these things, I shall continue to recommend that the minor cross-match be done routinely.

There are blood group incompatibilities that may lead to transfusion reaction without being detectable by a standard cross-match. In one case that we reported, a volunteer had developed an anti-Kidd titer of 1:32 as the result of repeated intravenous injections of Kidd-positive blood. With continued injections of the same blood, the antibody disappeared, and could never be detected on subsequent tests. Chromium-51-tagged Kidd-positive red cells were given intravenously[1] and disappeared from the circulation in far less than the usual time. A full transfusion of Kidd-positive blood might not have produced a clinically apparent reaction, but it probably would not have produced a sustained hemoglobin rise. We have seen similar rapid disappearance of tagged red cells in the presence of undetectable (at the time of the experiment) anti-S, anti-s, and anti-Kp^a.

Another type of difficulty was reported in the Scandinavian Journal of Clinical Laboratory Investigation by Adner and Sjolin,[2] who gave transfusions of isotope-tagged red cells to thirty previously untransfused volunteers. After five to fifteen days in 8 of these thirty volunteers the cells rapidly began to disappear and were gone in a few days, which indicated an immunologic reaction of some kind, presumably an antibody which caused the removal of the cells from the circulation. In selected cases they gave second, rather small transfusions, from these same donors and found that the rate of removal of the cells from the circulation was greatly accelerated over the first transfusion. They were never able to detect blood group antibodies in the serums of these volunteer recipients. Ivan Brown has made this same observation.[3] Thus there seem to be a variety of situations in which transfusions may not fulfill their purpose because of rapid destruction of the cells, in spite of apparently compatible cross-match by all presently available procedures.

There is still another type of reaction which is not preventable by cross-match; that caused by white cell antibodies or platelet antibodies. These are febrile reactions. So far as I know, these are not fatal reactions but they are unpleasant. They can be prevented or minimized by removing the plasma and buffy coat from the blood.

Donors For Open Heart Surgery

The use of multiple donors, as for open heart surgery, brings up a final problem that I want to discuss. In such cases it is important that each donor be compatible with each other donor, as well as with the recipient. All must be of the same blood type.

If 5 donors are to be crossmatched, one may make a pool of equal amounts of serum from each of the 5 donors and the recipient.[4] From this mixture of serums 9 drops are placed in each of 6 labelled test tubes, to which is then added 1 drop of a 2 per cent red cell suspension of one of the six bloods. Thus 1 drop of red cells from each donor and the recipient are tested separately against 9 drops of a mixture of all 6 serums. After incubation and centrifugation, the tubes are examined for agglutination. If none is seen, each tube is washed 3 times with fresh saline and converted to the indirect Coombs test. If agglutination occurs in one of the six tubes, those red cells must be retested against each individual serum to discover which contains the agglutinin.

If more than 5 donors are needed for a single operative procedure, 2 or more pools of serums should be made, with no more than 6 serums per pool. The increased quantity of serum used more than compensates for the dilution factor of the pooling. Red cells should not be pooled, because of marked loss of sensitivity when this is done. Saving of time is great, especially when large numbers of donors are involved: in the case of 17 donors, there is a saving of 252 tests (54 instead of 306).

Aside from ABO or Rh incompatibility, and it is assumed that all donors and recipient are of the same ABO group, and matched for Rh, the greatest risk in cases of multiple transfusion probably occurs when one of the donors is K+ and another is sensitized to K. Since about 10 per cent of persons are K+, anti-K is about the most common of the "rare antibodies", the risk from this combination of circumstances is not negligible, and careful matching of each serum against each red cell sample is recommended. I am quite sure that the pooling technique just described is satisfactory for this purpose.

REFERENCES

1. Fudenberg, H. and Allen, F. H., Jr.: Transfusion reactions in the absence of demonstrable incompatibility. New England J. Med., 256: 1180-1184, 1957.

2. Adner, P. L. and Sjolin, S.: Unexpected blood group incompatibility, revealed by 51 Cr-labelled red cells. Scand. J. Clin. and Lab. Invest., 9: 265-269, 1957.

3. Brown, Ivan: Personal communication.

4. Allen, F. H., Jr., von Bercken, T., and Boyce, S. J.: Crossmatching of blood for massive transfusion. Bull. A.A. Blood Banks, 12: 267-272, 1959.

Treatment Of Drug-Induced Constipation With A Purified Senna Derivative

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CONSTIPATION is one of the more troublesome problems of patient management in the modern general hospital. The increasing use of drugs with constipating side effects, particularly the advent of new neurotropic drugs such as the phenothiazine derivatives and ganglionic blocking agents, which also affect bowel motility, has made the complication of drug-induced constipation quite prevalent.

The mechanisms of drug-induced constipation are manifold, but basically are concerned with alterations of bowel motility. The spasmogenic action upon gastrointestinal musculature exerted by most opiates is a well-known cause of severe constipation, and is frequently utilized therapeutically in controlling diarrhea. Diminished peristalsis caused by ganglionic blocking agents, anticholinergic medications, and sympathomimetic drugs, is another common factor in drug-induced constipation. In the case of antacids, the dehydration and petrification of the fecal mass are primarily responsible for its delayed passage through the colon; when combined with the parasympatholytic effect of anticholinergics, a particularly pernicious type of drug-induced constipation may result in peptic ulcer patients. In any event, the essential mechanism in drug-induced constipation seems to be interference with initiation and maintenance of a normal peristaltic reflex, whether the specific effect be spasmogenic or atomic.[1]

Keeping such mechanisms in mind, it would seem logical that a successful method of treating drug-induced constipation would be a neuroperistaltic stimulant. In this study, the emodin[2] cathartic senna was used, specifically a preparation containing the anthraquinone glycosides of Cassia acutifolia.[3] Senna has a lengthy medical history, having been used in early Arabic medicine.[4] Its action is somewhat complex. It has relatively no effect upon the stomach or small intestine. The glycosides are absorbed from the upper gastrointestinal tract into the blood stream, where they are virtually inert pharmacologically. Part of the ingested dose is excreted by the kidneys, and part is re-excreted into the large intestine, where it is believed to be changed by enzymes produced by the normal colonic flora. These enzymes split the glycogen molecules from the glycosides and liberate aglycones, which in turn stimulate Auerbach's plexus in the intestinal wall. The end result is an acceleration in peristaltic activity of the large bowel.[5-11]

Selection of Cases for Study

One hundred patients, believed to be drug-constipated, were chosen from the general hospital population over a six-month period. No preference was made as to age, sex, or service, except that no case under fifteen years of age was used. The services from which the patients were chosen included medicine, psychiatry, neurology, surgery, orthopedics, neurosurgery, urology, gynecology, and ophthalmology. No obstetrical cases were used, and all cases having had abdominal or perineal surgery were excluded, as were cases with colon pathology. The aim of these omissions was to rule out the possibility of a mechanical factor influencing con-

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TABLE I

COMPOSITION OF 100 CASES OF DRUG-INDUCED CONSTIPATION, DIVIDED INTO CONTROL-UNTREATED, CONTROL-TREATED AND SENNA-TREATED GROUPS

	CONTROL UN-TREATED	CONTROL TREATED	SENNA TREATED	TOTAL
Number of cases	33	33	34	100
Average age (years)	46	47	50	47.7
Male/Female	19/14	18/15	19/15	56/44
Medical/Surgical cases	11/22	18/15	20/14	49/51
Operated/Non-operated cases	15/18	13/20	8/26	36/64
Malignant/Benign disease	7/26	6/27	8/26	21/79
Bed-rest/Ambulatory cases	21/12	16/17	17/17	54/46
Average duration of drug constipation (days)	6.5	6.2	6.6	6.4
Average observation before laxative treatment (days)	untreated	3.5	5.6	4.6
Average observation after laxative treatment initiated (days)	untreated	5.4	2.3	3.9

TABLE II

CONSTIPATING DRUGS ENCOUNTERED AMONG 100 PATIENTS AND THEIR DISTRIBUTION AMONG THE THREE GROUPS

DRUG	CONTROL UNTREATED	CONTROL TREATED	SENNA TREATED	TOTAL
Codeine	10 (94 mg) *	10 (95 mg.)	9 (125 mg.)	29
Meperidine	2 (250 mg.)	8 (230 mg.)	5 (204 mg.)	15
Morphine	3 (40 mg.)	1 (29 mg.)	1 (35 mg.)	5
Dihydrohydroxycodeinone	0	1	1	2
Opium alkaloid mixture	2 (41 mg.)	0	0	2
Papaverine	1 (400 mg.)	1 (400 mg.)	1 (400 mg.)	3
More than one narcotic	12	4	9	25
Promazine	2 (200 mg.)	3 (196 mg.)	3 (187 mg.)	8
Rauwolfia serpentina	0	1 (400 mg.)	0	1
More than one phenothiazine derivative	0	1	1	2
Tincture of belladonna	0	0	1 (51 drops)	1
Atropine	0	0	1 (2.4 mg.)	1
Combinations	1	3	2	6
Totals	33	33	34	100

* Average dose of drug per 24 hours.

stipation (ileus, obstruction, perineal discomfort). Mobility, diet, general health, mental status, and previous bowel history were noted, but not allowed to influence selection of cases. Anyone receiving potentially constipating drugs who had undergone a constipating change in bowel habit while on the new medication was considered "drug-constipated". The principal criteria were 1. number of stools per day, 2. consistency of stool, and 3. the patient's subjective complaint of constipation.

Most patients were observed for three to five days prior to incorporation into the study. Most patients had had no bowel movements for forty-eight hours or more, while others had definitely constipated bowel movements, prior to inclusion in the study. All patients in the study stated they were constipated, many attributing their difficulty specifically to the medication they were taking. The great majority of cases later demonstrated a return to normal bowel function when the drug was discontinued, irrespective of other factors (increased activity, severity of illness, etc.).

Selected cases were arbitrarily placed into one of three equal groups: (1) control untreated, (2) control treated, and (3) senna treated. Table I shows the composition of the three study groups. Table II demonstrates the drugs encountered, and the average dose of the medication per 24 hours. Codeine, meperidine, and morphine, in respective order, were the most common narcotic causes of constipation, while promazine was the most commonly implicated phenothiazine derivative. Table III summarizes the constipating drugs. Of 100 "drug-constipated" cases, 81 were apparently due to narcotics, 11 to phenothiazine derivatives and 2 to anticholinergic drugs. Six cases were receiving combinations of these drugs.

Method of Study

Following a short period of observation (usually 3-5 days), the cases in the three aforementioned groups, were treated for three consecutive days with the laxative allotted to the specific group. The untreated control group was, of course, not given any laxative, and merely observed. The treated control group was given an eight per cent aqueous suspension of magnesium hydroxide[13] either with or without added mineral oil, total dosage being thirty milliliters. Results were recorded as to the number and consistency of bowel movements per twenty-four hour period. If a normal bowel move-

TABLE III

SUMMARY OF CONSTIPATING DRUGS AND THEIR DISTRIBUTION AMONG THE THREE GROUPS

DRUG CATEGORY	CONTROL UNTREATED	CONTROL TREATED	SENNA TREATED	TOTAL
Narcotic cases	30	25	26	81
Phenothiazine derivative cases	2	5	4	11
Anticholinergic cases	0	0	2	2
Combination cases	1	3	2	6
Totals	33	33	34	100

TABLE IV

RESULTS OF TREATMENT OF 100 HOSPITALIZED PATIENTS WITH DRUG-INDUCED CONSTIPATION DISTRIBUTED AMONG THREE GROUPS

		CONTROL UNTREATED	CONTROL TREATED	SENNA TREATED
Number of cases		33	33	34
Success		1 (3%)	12 (36%)	32 (94%)
Failure		32 (97%)	21 (64%)	2 (6%)
Narcotic cases	Success	1 (4%)	7 (28%)	24 (93%)
	Failure	29 (96%)	18 (72%)	2 (7%)
Phenothiazine derivative cases	Success	0	3 (60%)	4 (100%)
	Failure	2 (100%)	2 (40%)	0
Anticholinergic	Success	0	0	2 (100%)
	Failure	0	0	0
Combination	Success	0	2 (66.7%)	2 (100%)
	Failure	1 (100%)	1 (33.3%)	0

ment was produced within twenty-four hours following treatment, the treatment was considered a success and no further observation warranted. However, if no evacuation or only a constipated bowel movement was yielded, then the dosage of laxative was repeated. Only when a patient had received the dosage on three different days, with still no bowel movement of normal consistency, was the therapy considered a failure. Patients continued to receive the "constipating drug" throughout the study.

Magnesium hydroxide was selected for the treated control group because of its universal acceptance and frequent utilization as a laxative.

The senna treated group received 450 mgm. the first day. If a normal bowel movement was not produced during the subsequent twenty-four hours, 900 mgm. was given the next day; and finally, if not yet successful, 1350 mgm. was administered the third day. No result by the end of the third day constituted a "senna treated failure". As with the control treated group, once a normal bowel movement was produced, while under treatment, the case was considered a success, and the study terminated.

Results

Table IV presents the results of the study.

The three groups had essentially the same number of cases. In the control untreated group, 32 of 33 cases were designated "failures" (97 per cent). The sole "success" occurred with a patient receiving morphine, who spontaneously reverted to normal bowel habit while continuing to receive the drug. The phenomenon might be explainable by some form of tolerance, or perhaps by other unrelated factors. In any event, the 97 per cent seems to represent a valid selection of cases as "drug-constipated" for the study presented here, and furthermore, shows the relatively intractable nature of such constipation when untreated.

The magnesia-treated group, also numbering 33 cases, had 12 (36 per cent) successes and 21 (64 per cent) failures. Among the narcotic-constipated patients, magnesia was only 28 per cent successful; while among the phenothiazine-constipated cases, magnesia was 60 per cent successful, perhaps indicating a greater severity of constipation due to opiates as well as the therapy-resistant nature of narcotic-induced constipation.

Among the 12 magnesia treated "successes", 10 responded with one dose of magnesium hydroxide. Two more responded following a repeat dose; but none who failed to respond with the first two doses did so with a third dose.

In the senna-treated group, 32 of 34 cases were "successes" (94 per cent). The two failures occurred among the narcotic-constipated cases. One case, a terminal carcinoma patient, failed to respond even after four doses. Another case failed after two doses, and refused to accept a third dose because of cramping. The four phenothiazine-derivative cases and the two anticholinergic cases in this group were 100 per cent successful when treated with senna.

Of the 32 senna-treated successes, 24 responded with one dose, 8 with the second dose, and none who failed with the initial doses were successful with a third.

Observation after initiation of laxative therapy extended for a shorter period with the senna-treated cases. The average duration was 2.3 days. The control-treated group averaged 5.4 days. The variation reflects the degrees of success of the two groups, since observation was discontinued as soon as "success" was achieved.

Summary and Conclusions

1. A controlled study of 100 cases of drug-induced constipation is reported. These were divided into three groups: an untreated control, a control group treated with magnesium hydroxide, and a test group treated with a senna derivative.
2. Untreated drug-induced constipation was spontaneously relieved in only three per cent of cases.
3. Of the group treated with magnesium hydroxide, thirty-six per cent were successful.
4. Of the group treated with the senna derivative*, ninety-four per cent were successful.
5. In this study, narcotic-induced constipation proved to be more intractable to therapy with

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* Supplied as Senokot Granules by The Purdue Frederick Company.

magnesium hydroxide than phenothiazine-induced constipation.

6. With both magnesia and senna, the study indicated that failure with two doses did not warrant further laxative therapy.

REFERENCES

1. Shaftel, H. E., Samuels, S. S., Padernacht, E., and Halpern, A.: Mitigating the destructive aspects of drug-induced constipation on the vascular system. Angiology, 11: 480 (Oct., Part 2) 1960.

2. Kasdon, S. C. and Morentin, B. O.: The management of puerperal constipation with a senna preparation. J. Intern., Coll. Surgeons, 31: 455 (Apr.) 1959.

3. Katz, R.: Evaluation of standardized senna in the treatment of refractory constipation. M. Press, 243: 335 (Apr. 20) 1960.

4. Abrahams, A.: Chronic constipation. Practitioner, 170: 266 (Mar.) 1953.

5. Halpern, A., Shaftel, N., Selman, D., Shaftel, H. E., Kuhn, P. H., Samuels, S. S., and Birch, H. G.: Straining forces of bowel function. Angiology, 11: 426 (Oct., Part 2) 1960.

6. Steigmann, F.: Dangers of constipation in cardiac patients. Angiology, 11: 488 (Oct., Part 2) 1960.

7. Okada, T. and Tohoku, J.: The mechanism of the action of senna. J. Exp. Med., 38: 33 (Mar.) 1940.

8. Tirsch, H. S. and Rosenfeld, S.: Constipation in severely incapacitated invalids. Am. J. Gastroent., 31: 702 (June) 1959.

9. Burgess, D. E.: The treatment of constipation. Pharmaceut. J., 181: 337 (Nov. 1) 1958.

10. Lamphier, T. and Ehrlich, R.: Evaluation of standardized senna. Am. J. Gastroent., 27: 381 (Apr.) 1957.

11. Browne, J. C. M., Edmunds, V., Fairbairn, J. W., and Reid, D. D.: Clinical and laboratory assessment of senna. Brit. M. J., No. 5016: 436 (Feb. 23) 1957.

12. Duncan, A. S.: Standardized senna as a laxative in the puerperium. Brit. M. J., No. 5016: 439 (Feb. 23) 1957.

13. Goodman, L. S. and Gilman, A.: The pharmacological basis of therapeutics. N. Y. , The Macmillan Co., 1955, p. 1034.

There are no small problems; those which seem so are large ones not understood . . . Nature constitutes a harmonious mechanism in which all the parts even those which seem to perform a secondary role, co-operate in the functional whole . . . On contemplating this mechanism . . . the discreet thinker contents himself with classifying them into what is known and what is little known, and ignoring momentarily their mechanism and their immediate useful effects . . . Let us cultivate science for its own sake without considering its applications for the moment. These always come; at times it requires years, at times centuries . . . The cause of progress would have prospered little if Galvani, Volta, Faraday and Hertz, discoverers of the fundamental facts of electricity, had underrated their findings because they lacked industrial application at the time.

—Ramon Y. Cahal, *Precepts And Counsels On Scientific Investigations.*

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EDITORIALS

Smoking And Physiological Age

> *"Men do not usually die, they kill themselves."*—Montagne

Apparently there exists no reliable method of measuring the physiological age of an adult human being. The best way seems to be to look at him and then say how old he appears to be. It is, however, possible to make some statements about the physiological age of populations. This is accomplished by age-specific mortality curves, in which are drawn the fraction of living persons of a given age that die that year. An Englishman, Gompertz discovered last century that the age-specific death rates of adults are an exponential function of age. A plot of the logarithm of the age specific mortality against age is a straight line with a slope of 0.3. The Gompertz relation holds for species of animals other than man also and in general the doubling time is about 12 per cent of the mean life expectancy.

Professor Harden Jones of the Donner Laboratory of the University of California in Berkeley has made much of Gompertz curves in his analysis of factors that affect mortality.[1] He plotted the logarithm of coronary heart disease against age for three populations, non-smokers, smokers of 10 cigarettes a day and those consuming one pack a day. The curve for one pack per day smoker is shifted by seven years from the curve for non-smokers. That is, the probability that a cigarette smoker will die of coronary heart disease at age fifty-five is the same as the probability that a non-smoker will die of coronary heart disease at age sixty-two and is about twice the probability that a non-smoker will die of coronary heart disease at age of fifty-five. With respect to this disease then, the cigarette smoker behaves as though his physioological age were seven years greater than his chronological age. If all diseases are taken into account and this includes lung cancer, then Jones reported that the increased mortality of the one pack per day cigarette smoker corresponds to an increase in physiological age of eight years and that of a two pack per day smoker to sixteen years, relative to non-smokers.

As people become older, the incidence of various diseases increases, doubling about every 8.5 years. As one grows older, one must expect to suffer more and more from physical frailty and disease. One might accordingly ask if it would not be wise to eliminate the period of ill health and suffering that may be expected to come towards the end of one's life. Why not smoke cigarettes at the rate of one pack a day and die eight years earlier than otherwise thus cutting off the last eight years of suffering or even why not smoke two packs a day and thus escape the last sixteen years of ill health and misery of old age. The answer is that this trick will not work. Smoking cigarettes merely ages you prematurely thereby shortening the period of health and vigor. The cigarette smoker reaches old age more rapidly than the non-smoker and cannot escape the period of failing health, unless by a turn of the die he suffers an especially early death from lung cancer or coronary heart disease.

What can be the explanation of the higher death rate from coronary heart disease among smokers as compared to non-smokers. E. Cuyler Hammond[2] believes it is due mainly to the effects of the cigarette smoke upon the tissues of the lungs for he observed rupture and subsequent thickening of the thin sensitive walls of the alveoli in which the blood is oxygenated. He also noted fibrotic thickening of the walls of small arteries and arterioles, and that this deterioration of the lung increases with the amount of cigarette inhalation. Such tissue changes place an added work load on the heart while at the same time curbing its oxygen supply. A perfectly normal heart can probably withstand these effects of inhalation of tobacco smoke. But some degree of atherosclerosis can be found in the majority of American males. The added work load and shortage of oxygen could thus result in the failure of a heart of a person whose coronary arteries are already partially occluded by atherosclerosis.

In 1959 Americans smoked 5×10^{11} cigarettes which is about ten cigarettes a day for adult Americans. This amount of smoking corresponds to a decrease in life expectancy for four years for the average American and represents 14.4 minutes of life lost for each cigarette smoked. About 50 per cent of adult Americans now smoke cigarettes. It may be to a large extent a matter of chance, environmental circumstances, during puberty and early adulthood that determines whether or not a young man or woman becomes a cigarette smoker. Having become a cigarette smoker he finds it hard to stop. Without doubt, smoking is now the most dangerous drug addiction. Nevertheless, it is possible to stop. Between 1954 and 1959 a marked change occurred in the smoking habits of physicians in Massachusetts. The number of cigarette smokers decreased from 52 per cent in 1954 to 39 per cent in 1959, with a still greater fractional decrease in the number smoking more than one pack a day. The British medical profession show a similar tendency. In reply to a questionnaire the proportion of doctors describing themselves as non-smokers rose from 35 per cent in 1951 to nearly 60 per cent last year. This shows a healthy trend, for when the medical profession leads the way it may be expected that his patient will more readily follow his advice.

L.H.N.

REFERENCES

1. Pauling, Linus: Observations on aging and death, The Minority of One. 9, 1962.

2. Hammond, E. Cuyler: Report to American College Chest Physicians and AMA Association Meetings in Chicago, June 1962.

3. Smoking and Health. A report of the Royal College of Physicians of London on smoking in relation to cancer of the lung and other diseases. London. Pittman Medical Publications Co. 1962.

Constipation And Civilization

Constipation remains a constant and common human complaint. Cathartics, even in our age of tranquilizers, are probably the most frequently employed medicinal agents. Paradoxically, study of this subject is often neglected in the medical school curriculum and the fledgling physician is often left to his own devices in coping with this problem in patients. He soon finds himself dealing with a highly bowel conscious public possessing a large fund of misinformation and faulty folk-lore, buttressed by crude and deceptive advertisements for patent cathartics, which reinforce its ignorance.

Alvarez defined constipation as "a delay in defecation which brings discomfort, worry, or indigestion". Nevertheless, for each patient, the term has a highly personal and variable meaning, which the physician must elucidate before he can intelligently deal with the condition. For some it means the passage of very dry, small, hard stools, or the infrequent passage of normal stools, while for others it connotes the sensation of the incomplete emptying of the rectum they experience following a bowel movement.

Constipation is thus a complex disturbance of normal colonic activity, due to a variety of causes, most commonly functional, but at times organic as well. The physician when first presented with this complaint should be continually aware that carcinoma, megacolon, diverticulitis, and ulcerative colitis as well as more remote and rare diseases such as myxedema, hyperparathyroidism, and neurological disturbances may be etiologic factors. Izzard and Ellison elsewhere in this issue correctly remind us that constipation may be iatrogenic and directly related to the use of narcotics, tranquilizers, or antispasmodics.

The great majority of cases of chronic constipation, however, can be generally classified into two functional types. The "colonic type" of constipation is commonly seen in the irritable bowel syndrome and is usually the result of delayed passage of feces through the colon to the sigmoid and rectum. It is usually associated with exaggerated, non-propulsive "holding back" contractions of the distal colon and sigmoid. Pain, usually lower abdominal and either steady or cramping, accentuated by eating high residue foods, and relieved by bowel movement, is a common symptom. Alternating diarrhea and constipation with small, ribbonlike stools often mixed with mucus is frequent.

"Rectal constipation" or dyschezia is the more commonly encountered form of constipation and represents a failure of the primitive but highly coordinated defecation reflex. This spinal reflex is subjected to increasing cortical inhibition as the individual becomes more mature and the society more civilized. The major cause of simple constipation today remains the repeated disruption of the normal defecation habit. What begins as a willful repeated suppression of the urge to defecate is often aggravated by sedentary activity patterns, fatigue, tension, and inadequate diet, ultimately resulting in full blown chronic constipation. With distention of the rectum by dry, hard, fecal material, there results the classic picture of constipation—one vividly painted daily by various TV announcers—of headache, listlessness, irritability and lower abdominal discomfort. The individual resorts to self-administration of a variety of cathartics, usually inducing temporary relief. With failure to correct the faulty habit patterns underlying constipation, cathartics must be resorted to with increasing frequency resulting in an increasing dependence on, and abuse of these agents, often with exacerbation of the constipation by alteration of the normal bowel function.

The hospitalized patient with his sudden decrease in physical activity, and his often abrupt change of diet with decreased food intake presents a challenge in the management of acute constipation which, if ignored, can lead to fecal impaction with all its attendant discomforts and complications. The use of the bed pan, the barium meal, and the narcotic drug, in an already weakened patient further complicate the problem. Certainly here, perhaps more than anywhere else, when we are dealing with a hopefully temporary disruption of normal bowel habits, can one find justification for the use of the simple enema and the appropriate cathartic, in relieving both emotional and physical discomfort.

It is interesting that study of primitive vocabularies fails to reveal a word equivalent for constipation. Thus, it is apparent that constipation—be it the result of emotional stress, faulty habits, or doctor induced—is a disease of civilized man.

Saul S. Milles, M.D.

REFERENCES

1. Winkelstein, A.: The nature and treatment of chronic constipation and chronic diarrhea. M. Clin. North America, 26: 787-803, 1942.

2. Spiro, H. M. and Pilot, M. L.: The irritable bowel. Conn. Med., 23: 12-16, 1959.

3. Alvarez, W.C.: Nervous indigestion and pain. Paul B. Hoeber, Inc., N. Y., 1943.

Aged And Accidents

Accidents constitute a major but frequently overlooked, cause of death and disability among the aged. In 1957, persons 65 years of age and older made up nine per cent of the total population. This nine per cent accounted for 28 per cent of all accidental deaths and 20 per cent of all serious disabling injuries.

And once the older person is hospitalized as a result of an accident, he usually remains in the hospital for a long time. A study in 1957 showed that the average hospital stay for accidents of persons 65 years of age and over was 24.1 days compared with seventeen days for the total population and 4.8 days for children under 15.

One of the most common accidents in older people is fracture of the hip (neck of the femur). Their bones are more brittle and heal more slowly. Even with modern orthopedic methods of pinning and nailing at the fracture site, non-union is not uncommon. These individuals, although not ill, are disabled and bound to bed or wheelchair for the rest of their lives, as walking is impossible.

Fractured hips and strokes among older individuals fill more beds in hospitals for the chronically ill and nursing homes than any other type of disability.

Persons over 65 have accidents because they are usually less able or less willing to do these things:

Perceive danger. Because of failing sensory abilities, they do not get the warning signals.

Organize and interpret warning signals rapidly. Because of slowing mental abilities, they cannot decide fast enough what to do in a dangerous situation.

Move in a rapid and coordinated manner. Because of muscular and skeletal impairment, they often cannot get out of the way of recognized danger.

Compensate for physical impairment. Because they do not wish to burden others or to admit they are growing older, they do not ask for the help they naturally require.

Older persons are also involved in a large number of traffic accidents as pedestrians. They are prone to think they have the right to walk the streets and highways as they please. Their hearing and vision are often impaired.

Most interestingly, the great majority of pedestrian accidents involve older persons who have never driven a car. One study in Illinois showed that nine of every ten older pedestrians killed in traffic were not drivers.

Elderly persons who don't drive fail to realize a driver's limitations in stopping and maneuvering a vehicle. If the older person in the family has never driven, some special orientation on traffic hazards is desirable.

Another important problem for older people who do drive is deciding when they should stop driving. Many experienced drivers can continue to drive safely even in their eighties. Others are no longer safe drivers in their sixties. The decision must be an individual one, as the ability to drive is based on physiology not chronology.

One aspect of driver safety frequently overlooked among older persons is their failure to keep informed on traffic regulations and the required techniques for operating modern motor vehicles in today's complex traffic problems.

Currently, Maine, Delaware, Illinois, Indiana, New Hampshire and the District of Columbia require complete re-examinations upon renewal of driving privileges when certain ages, usually 65 to 70, are reached. Other states require that all applicants for license renewal complete some portion of the licensing examination.

Medical science still lacks specific knowledge on preventive measures for many diseases that take a high toll in death and disability among the elderly.

By Howard A. Rusk, M.D., reprinted with permission of the author and of The New York Times.

The Trials And Tribulations Of Virus Vaccine Production

A problem described by several scientists independently has been brought into sharp relief. It stems from a discovery in 1960 that a monkey virus SV40 could cause a high incidence of many kinds of cancers in hamsters.[1] What was important about this finding made by Bernice M. Eddy of the National Institutes of Health in Bethesda, was that SV40 was a contaminant of both live and killed virus types of poliomyelitis vaccine. As a result large numbers of vaccine lots were disqualified because there was no evidence that this contaminant was not cancerogenic.

Fortunately, Dr. Eddy's[1] report appeared before any of the oral live virus poliovaccines were licensed for use in this country and so SV40 has never been in any commercial vaccines of that kind here. There is no doubt, however, that a large part of the Salk vaccine and that of the live virus Sabin vaccines that were used in clinical trials throughout the world were contaminated with SV40 virus.

The problem of cleaning poliovirus seed stocks and the monkey tissue on which the viruses were grown for vaccine has been an extremely difficult one. SV40 infects about 70 per cent of all rhesus monkeys, the type that until recently has been the major source of kidney tissue for vaccine production. The virus is carried by those monkeys as an inapparent infection, never or extremely rarely bursting out in disease. Thus, unless a way for detecting the presence of SV40 could be found vaccine manufacturers would have no way of knowing whether any particular rhesus kidney harbored the virus. Fortunately, the fortuitous way in which SV40 was found also provided the necessary protection system.

In 1960 Dr. M. R. Hilleman noticed that material from a rhesus kidney could kill kidney cells from the green monkey. They isolated the lethal agent, found it was a virus and called it simian virus NO40 or SV40. Clearly enough the green monkey could not harbor SV40 and therefore was selected by most large vaccine producers to displace the rhesus as the animal of choice for vaccine manufacture.

Success in separating polio viruses from SV40 and in finding a way to grow the virus for vaccines on uncontaminated cultures has not solved all the problems. Now that it is clear that virus vaccines can be contaminated by other viruses which may have potential dangers, the production of many vaccines has had to be held up until methods are found to separate the virus to be used for a vaccine from other contaminating viruses. One example is the frustrations involved in producing a vaccine against the acute respiratory disease that is caused by an adenovirus. This disease is almost completely confined to military training posts has caused an epidemic uninterruptedly for twenty years and is among the biggest and longest ever to hit the United States, having struck millions of men and cost untold millions of dollars in medical care and lost time. Unless and until the seed stocks of that type of adenovirus can be cleaned of its SV40, no vaccine against it can be produced. Some suspect that the trouble that is encountered in separating these viruses is that in some as yet not understood way they are very much alike. If this is so, does this mean the adenovirus also has some carcinogenic potential?

The last and most perplexing aspect to the SV40 situation is what it may portend for the future. In one sense this problem has already come up in the manufacture of measles vaccine which is grown on chick embryo tissue. Chickens are known to have virus caused tumors. Until a way is found to ascertain that cultures are free of chicken tumor viruses measles vaccine manufacture must be held up. It is this kind of nightmare, that of finding viruses capable of causing cancer in systems used to produce vaccines, that investigators must learn to live with and solve.

If Shein and Enders[2] should find that SV40 is carcinogenic for humans as it is for human cell cultures, there still remains an encouraging aspect to this report. For they observed that normal cells infected with SV40 somehow interfered with the growth of the transformed cells. Similarly, Fogh and Allen[3] also found that cultures of human amnion tissue inhibited the growth of malignant looking ones that had arisen there spontaneously. They believe that some sort of protective substance was produced by the normal cells that selectively acted against the transformed amnion cells and not harming the healthy ones. There thus arises a hope that restraining substances that Fogh and Allen are working with, will be found that could be used specifically against cancer.

L. H. N.

REFERENCES

1. Eddy, B., G. S. Borman, G. B. Grubbs & R. B. Young: Virology in Press.

2. Shein, H. M. and Enders, J. F.: Transformation induced by simian virus 40 in human renal cultures. Morphology and growth characteristics. Proc. Nat. Acad. Sciences, 48: 1164, 1962.

3. Fogh, J. E. and Allen, B.: Mutual effects of cultured normal and malignant human amnion cells. Fed. Proc. 21: 159, 1962.

A Humane Research Act

The great public interest generated by the attempt in 1961 to enact a medically oriented pound law in Connecticut is a fair indicator of what can be expected when a Humane Research Act is introduced into the new legislative session this winter. Those opposing the use of the dog in medical research will mount a free-wheeling, no-holds-barred, emotional campaign. Medicine, with customary decorum, will present the facts of research life, on-the-record support by all public-spirited organizations and a few impressive and notably benefitted patients. The public, in the middle, will view this with an interest, which for the most part, amounts to detachment, as if a debate-in-vacuo were unfolding. Incredible as it sounds, the connection between better health for the individual and the need for dogs in medical research can be missed when both sides are presenting their own version in the press or at a hearing. Only when a little reflection connects self-survival to medical research will the public reaction be translated into public support for a new pound law. In making this connection, the family's physician stands as an unimpeachable authority. His devotion to health in the community is unquestioned. His endorsement of the goals and methods of medical research is the decisive factor in convincing the vast majority of his patients.

A few physicians, located in every part of the state, are beginning an education program in their communiities which they believe will help every practitioner to lead his patients to this conviction. They want the help of others like themselves, who will present the case for medical research to groups of responsible citizens. Straight-forward exposition of what research has accomplished, delivered with personal endorsement and an honest attempt to answer questions, will give their audience a better chance to make a decision based on facts than will any amount of public discussion in the newspapers.

Correspondence appearing under letters-to-the-editor summarizes the resources available to these physicians for delivering this information before civic organizations and clubs.

During the rest of the year, we all have an opportunity to display the case for medical research to our patients in the form of a campaign of education, particularly by participating as speakers in talks such as these and by other direct contacts in our own communities. The public must be made to understand that medicine without research is unthinkable. Research without animals is impossible. Animals without dogs are too limited in helping to perfect methods directly applicable to man. What is left without the dog is to convert man himself into an experimental animal. Only the most depraved like the Hitlerites ever tried this and ended up not by contributing anything to knowledge but by burning their experimental victims. No, man must be the beneficiary of animal research not its victim.

The "Water Factor" In Cardiovascular Death Rates

It is a mark of scientific genius[1] *to be sensitive to difficulties where less gifted people pass by untroubled with doubt.* — Morris R. Cohen and Ernest Nagel.

In 1957 there appeared a study by Kobayashi which indicated that a correlation exists between acidity of potable water and the death rate from cerebral hemorrhage. Since cerebral hemorrhage is generally a sequel to hypertension a further correlation with the amount of salt in the diet which is strongly correlated with hypertension would have added further meaning to Kobayashi's observation. At any rate it called attention to an environmental factor in death rate, which was not seriously entertained by anyone, namely the character of the potable water to which every one is exposed.

Schroeder[2] analyzed Kobayashi's data and found further, that a better correlation existed between heart disease and the potable water and it became apparent to him, that some quality of water might influence mortality from one or several cardiovascular diseases. He, therefore, undertook an extensive statistical analysis of the death rates in the U.S.A. according to geographical areas to determine what if any correlation exists between death rates and known constituents and characteristics of "finished" water. His analyses were made possible by a series of papers from the National Office of Vital Statistics covering the whole United States and each state[3] as well a series of studies of Geological Survey Water Supply papers.[4] The data was so immense that only digital computers made possible the computations needed to establish possible correlations between 20 constituents of water and death rates.

The first point of importance to appear was that deaths from non-cardiovascular disease were equally distributed between hard and soft water drinkers and no correlation could be found. But a striking correlation turned up between death rates and water softness. Hard water made so by concentrations of calcium, magnesium, sulphate and bicarbonate were unequivocally related to lower death rates from cardiovascular disease. This negative correlation between total hardness and death rates were universally significant and when the effect of hardness was removed mathematically from the analytical data significant correlations disappeared. The striking thing about this finding is that the correlations were all opposite to the direction suspected by superficial thinking or snap judgment. In fact the analyses were set up with the opposite result in view namely that mortality would be aggravated by hardness. Instead hard water turned out to be associated with protection.

Other surprising results have come out of this purely statistical study. The high degree of significance of most correlations surpass even the usually accepted level of most biological experiments. There were 99 chances out of 100 that the 15 of 18 correlations are not accidental and not the result of some remote fluke. The correlations held true not only for death rates for all ages and races but also for a selected group of white men and in the case of coronary heart disease for cities as well as states. The positive correlations were good to excellent between water softness and all cardiovascular diseases for male coronary cardiovascular disease.

It is interesting that the major areas of lower mortality and harder water comprised the states in the great watershed of the Missouri-Mississippi River and its tributaries. Here the hardness was caused by calcium and magnesium ions. The area of high mortality were in general the Atlantic and Pacific slopes where the calcium and magnesium content of water was low and at times absent.

One must always tread warily through mazes of statistics for the pitfalls are many. There are socioeconomic factors, occupation, food sources, diet, environmental stresses which at present act as preconceptions to occlude other thinking for those who are seeking psychosocial causes for chronic diseases. But confirmation comes from England where Morris[5] attempts verification for the hard water concept of protection against cardiovascular disease. He also found that the softer the water supply in the country boroughs of England and Wales the higher the death rates from cardiovascular disease. An interesting observation by Durán[6] in the Canary Islands is especially contributory to the hard water concept. In these islands cerebrovascular disease and coronary disease is high. The amount of animal fats in the diet is negligible, the blood cholesterol levels are unusually low but the drinking water is so soft that its calcium and magnesium content is nil. However, the salt content of the diet of these people is not given and it may be a high intake of salt leads to hypertension in a large proportion of these people.

There is clearly a case for further inquiry in the observation, now confirmed, that in some way hard water is negatively related to deaths from cardiovascular disease while those drinking soft water have a higher incidence of mortality from cardiovascular disease. To Kobayashi and Schroeder we are indebted for their ability to perceive in a brute experience, the occasion for a problem, and especially such an important problem, whose solution would have a bearing on the solution of other problems and in fact upon the lives of countless humanity.

We have distinguishable and repeatable elements here in data obtained from as diverse areas of the globe as Japan, the United States, England, Wales and the Canary Islands. While more data accumulated from other areas would be useful, we are ready from the data at hand to formulate the hypothesis that a significant correlation exists between the hardness or softness of potable water and cardiovascular death rates. Several possible explanations can be offered for the observation. One is that something beneficial to the outcome of cardiovascular disease may be present in hard water. Another may be that some adverse factor exists in soft water. Since the amount of calcium and magnesium contributed by water is very small, the mere deficiency of these minerals could play no role. Another possibility is that soft water and acid water attack the pipes through which they run taking up zinc, cadmium, iron, copper or lead. Cadmium and lead are known to accumulate in human tissues and both have been found in water running through galvanized iron pipes in considerable amounts. Another possibility is that the observed correlation may not represent a true cause and effect relationship but a mutual association with some as yet unrecognized factor.

At present all the data presented refer to mortality data. What about the incidence of the cardiovascular diseases and the degree of morbidity.

These need further study. Which of the main elements of cardiovascular diseases in middle age is especially involved. Is it mural atheroma, intravascular thrombosis or hypertension? More post mortem data are needed along these lines. Is the correlation due to a causative or merely an aggravating factor? The latter is believed to be the case.

We are already in possession of data positively correlated with cardiovascular disease, such as obesity, hypercholesterolemia, hypertension and excessive smoking. Because of this konwledge, reasons for the wide geographic variations in death rates from cardiovascular disease in this country have been discussed speculatively according to the prevailing fashion of etiological thinking. Now a definite clue is provided which may lead to a precise definition of one environmental influence which affects adversely the course of coronary heart disease, hypertension and atherosclerosis, the three entities that account for most of the cardiovascular degenerative disease in the United States today. Those who are concerned with municipal treatment of water besides all their other problems, which are many, now have placed upon them the responsibility of furnishing hard water if they aim to reduce the incidence of mortality from cardiovascular disease.

The idea of a "water factor" has already widened our horizon, has made us see other points of view than those to which we are accustomed and has opened many new areas for investigation. The discovery of the mechanism behind this problem offers a challenge which it is hoped will be taken up by many disciplines.

L.H.N.

REFERENCES

1. Kobayashi, J.: Geographical relationship between chemical nature of river water and death rates from apoplexy. Beriehte, d., Ohara lust f landwirtsh Biologie, 11: 12 March 1957.

2. Schroeder, H. A.: Relation between mortality from cardiovascular disease and treated water supplies. J.A.M.A., 172: 1902, April 23, 1960.

3. National Office of Vital Statistics: Death rates for selected causes by age, color and sex, United States and each state 1949-1951. Vital Statis., 49: 1-15, Special Rep No. I, Dec. 19, 1958. Special report No. 31, April 24, 1959.
Special report No. 36, July 16, 1959.

4. Lohr, E. W. and Love, S. K.: Industrial utility of Public Water Supplies in the United States 1952 Parts 1 & 2. Geological Survey Water Supply Papers 1299 and 1300. Washington, U.S. Government Printing Office, 1954.

5. Morris, J. N., Crawford, M. D., and Heady, J. A.: Hardness of local water supplies and mortality from cardiovascular disease. Lancet, 1: 860, April 22, 1961.

6. Schroeder, H. A. and Durán, J.: Hardness of local water supplies and mortality from cardiovascular disease. Lancet, 1: 1171, May 27, 1961.

Speculation In Medicine II

Everyone first works out his own ideas about what he sees and is inclined to interpret natural phenomena by anticipation before knowing them through experience. This tendency is spontaneous; a preconceived idea always has been and always will be the first flight of an investigating mind. But the object of the experimental method is to transform this *a priori* conception, based on an intuition or a vague feeling about the nature of things, into an *a posteriori* interpretation founded on the experimental study of phenomena. This is why the experimental method is also called the *a posteriori* method.

Man is by nature metaphysical and proud. He has gone so far as to think that the idealistic creations of his mind, which correspond to his feelings, also represent reality. Hence it follows that the experimental method is by no means primitive or natural to man, and that only after lengthy wanderings in theological and scholastic discussion has he recognized at last the sterility of his efforts in this direction. At this point man becomes aware that he cannot dictate laws to nature, because he does not contain within himself the knowledge and criterion of external things, and he understands that to find truth he must, on the contrary, study natural laws and submit his ideas, if not his reason, to experience, that is, to the criterion of facts. Yet for all that, the method of work of the human mind is not changed at bottom. The metaphysician, the scholastic, and the experimenter all work with an *a priori* idea. The difference is that the scholastic imposes his idea as an absolute truth which he has found, and from which he then deduces consequences by logic alone. The more modest experimenter, on the other hand, states an idea as a question, as an interpretative, more or less probable anticipation of nature, from which he logically deduces consequences which, moment by moment, he confronts with reality by means of experiment. He advances, thus, from partial to more general truths, but without ever daring to assert that he has grasped the absolute truth. Indeed if we held it at any point whatever, we should have to everywhere; for the absolute leaves nothing outside itself.

An experimental idea, then, is also an *a priori* idea, but it is an idea that presents itself in the form of an hypothesis the consequences of which must be submitted to the criterion of experiment, so that its value may be tested.

CLAUDE BERNARD, M.D.

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* From *An Introduction to the Study of Experimental Medicine* (1865), trans. by H. C. Greene (New York: The Macmillan Co., 1927).

Reprinted from *Lippincott's Medical Science,* May 10, 1961.

THE PRESIDENT'S PAGE

Next month the people of Connecticut go to the polls to demonstrate their choices for U. S. Senators, a new governor and many candidates to fill local offices. All these candidates have expressed their desire to carry out the responsibilities which these offices require. Further, they have affirmed the fact that they wish to serve the people for the welfare of the people. We, as physicians, have been working hard to learn the true facts about these candidates and have asked COMPAC to furnish us with the truths. Some of the candidates have been slow to devulge their stand on many vital points. The physicians, while not a large segment of the population, are deeply concerned in sound progressive medicare. We are not so much interested in defeating the King-Anderson Bill or supporting the Kerr-Mills Bill in some form as we are to build a strong basis for future medical care on an economic and intelligent status.

It is indeed a sad and humiliating situation today to live in Connecticut, a state of wealth whose debts have been increasing in size in the past few years without any evidence of recession. This year the debt is reported to be $1,081,-228,000 dollars. This means that every man, woman and child owe the State of Connecticut $432.61. All the elderly poor of whom we have heard so much about, each owe Connecticut that amount of money. A man and wife with 12 children and there are many such families, owe the State $6,056. In spite of these realities our legislators would make it appear that Connecticut thrives on an ever increasing debt. To be sure it costs money to run our government, to educate children, to build roads, to maintain libraries, hospitals, and care for the aged. There is a limit to debts and that is when it becomes a burden heaped upon a burden, but worse still the State is setting a bad example for its people. Any person in the State can say, "If the State of Connecticut can place its confidence in its debts why can not I do the same?" How are we to survive the yawning caverns of our increasing debts? The answer is yours to make.

We have less than a month to evaluate the candidates. Have they the capacity to take these problems seriously? Have they the capability and integrity to think deeply and seriously and come up with a sound answer? We do not want any candidate just because he belongs to one political party or the other, nor does he have to be born with a gold spoon in his mouth. We want men firm in their convictions who will prevent needless spending of our monies, who in their own rights have been successful and who love elderly people and have shown kindness towards the unfortunate, who can visualize, analyse, and resolve psychic and economic problems. Most of all, will you please vote and persuade your friends and patients to vote for those persons who can legislate a modern medical program with special reference to the care of the aged through a financial avenue free from social security influence?

Clyde L. Deming, m.d.

FROM THE GENERAL MANAGER'S OFFICE

William R. Richards, m.d., *General Manager*

James G. Burch
Director of Public Relations

160 St. Ronan Street, New Haven, Conn.
Telephone UN 5-0587

Josephine P. Lindquist
Assistant to General Manager

Proposed Amendments To The Bylaws

Four proposed amendments to the Bylaws were presented to the House of Delegates on May 2, 1962 and were tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, these amendments will be published in Connecticut Medicine, "on one or more occasions prior to the next meeting . . . at which meeting the amendments shall be taken off the table and acted upon by the House of Delegates."

Introduced by the Council:

Article V, Section 2 of the Bylaws be amended by the addition of a new subsection (c), which shall follow immediately after present subsection (b), and shall read: "ALL PAST PRESIDENTS OF THE SOCIETY, WHO SHALL BE EX-OFFICIO MEMBERS OF THE HOUSE OF DELEGATES, WITHOUT THE PRIVILEGE OF VOTING."

Introduced by the Litchfield County Medical Association:

Article VII, Section 1, Paragraph 7 of the Bylaws be deleted and substituted therefor by the following: "THE CHAIRMAN OF THE COUNCIL AND THE COUNCILOR FROM EACH COUNTY SHALL BE THE NOMINATING COMMITTEE OF THE SOCIETY. THE CHAIRMAN OF THE COUNCIL SHALL BE THE CHAIRMAN OF THE COMMITTEE. THE COMMITTEE, AFTER CONSULTATION AND ADVISING WITH THE ENTIRE COUNCIL SHALL REPORT ITS NOMINATIONS TO THE FIRST SESSION OF EACH ANNUAL MEETING OF THE HOUSE OF DELEGATES. FOLLOWING THIS REPORT, NOMINATIONS MAY BE MADE FROM THE FLOOR."

Article VII, Section 2 of the Bylaws be amended by the deletion of the clause, AND ONE ADDITIONAL ASSOCIATE COUNCILOR FROM EACH COMPONENT ASSOCIATION HAVING OVER 750 MEMBERS."

Article VII, Section 2 of the Bylaws be amended by the addition of the following sentence after the term Councilor-at-Large, "IN THE EVENT THAT BOTH THE COUNCILOR AND THE ASSOCIATE COUNCILOR(S) FROM A COUNTY ASSOCIATION CANNOT BE PRESENT AT A COUNCIL MEETING, THE PRESIDENT OF THE COUNTY ASSOCIATION MAY APPOINT A SUBSTITUTE COUNCILOR."

COUNCIL MINUTES — Wednesday, August 29, 1962

A meeting of the Council was called to order by the Chairman, Ralph L. Gilman, at 2:00 P.M. on Wednesday, August 29, 1962. Present in addition to the Chairman were: Drs. Deming, Pitock, Hess, Caplan, Cullen, Gardner, Wilson, Bradley, Cornwell, Grendon, Grant, Murray, Jr., Gorman, Martin, Sundquist, Egan, Abbot, H. Caplan, Phillips. Also present: Mrs. Lindquist, Dr. Richards. Absent were: Drs. Goldberg, Scully, O'Connor, Davis, Hughes, Chartier, Dean, Gevalt, Hasting, Beardsley.

APPROVAL OF MINUTES. It was VOTED to approve the minutes of the meeting of July 5, 1962, as printed.

DUES EXEMPTIONS.

a. It was VOTED to adopt a general policy for exemption from payment of CSMS annual dues as follows:

1. Exemption from payment of CSMS annual membership dues by the Council shall be contingent upon simultaneous exemption from payment of county membership dues by the member's county medical association, and upon recommendation of a Councilor from that county association.
2. Termination of exemption from payment of county membership dues by the member's county medical association shall simultaneously terminate his exemption from payment of CSMS membership dues.
3. When exemption from payment of CSMS membership dues is approved by the Council for a period longer than a current year or for an extended or indefinite period, at the time of the Society's annual dues billing for the next and any subsequent years the General Manager's office shall inquire of each member so exempt whether his original exemption status has changed and, if not, whether he wishes his state and county dues exemptions to be continued. Upon receipt of this information from the member, and in absence of any conflicting recommendation from his county association, the General Manager's office shall be authorized to extend the exemption for an additional twelve months period under the terms originally voted by the Council. This procedure would not be followed in cases of "permanent" exemption.
4. When a member has been exempted from payment of both county association and state society membership dues, and if he is a member of the American Medical Association, the General Manager's office shall notify the Membership Section of the AMA of these exemptions and be requested to take appropriate similar action consistent with AMA policy.

b. It was VOTED to exempt Herbert L. Snyder, Manchester, from payment of dues during the period of his postgraduate education (until 1965).

c. It was VOTED to exempt Seymour M. Miller, West Hartford, from payment of dues a/c physical disability.

d. It was VOTED to exempt Samuel B. Rentsch, Glastonbury, from payment of dues during the period of his postgraduate education (until June, 1963).

e. It was VOTED to exempt Robert W. Bain, Norwich, from payment of dues a/c financial hardship, pending confirmation of county dues exemption. Dr. Bain has accepted a post as medical missionary in Africa through 1963.

LIFE MEMBERSHIP. It was VOTED to transfer the status of Thayer A. Smith, Woodbury, from Active Member to Life Member.

REPORT OF AMA DELEGATES AND ALTERNATE DELEGATES. Drs. Cullen, Gardner, M. Caplan and Gorman reported on various aspects of the proceedings of the AMA House of Delegates in June, 1962. Formal accounts of these proceedings have been published in the JAMA and AMA News.

FIVE AGENCY JOINT ADVERTISEMENT: "WHAT IS YOUR HEALTH-WEALTH?" The Council received as information a report from The Insurance Information Office of Connecticut on the joint advertisement placed in all Connecticut daily newspapers on July 2, 1962. The report indicated the financial contribution made to the project by each of the participating agencies.

COMMITTEE ON MEDICAL ECONOMICS AND INSURANCE. M. David Deren, Chairman, joined the council to report on the following matters:

a. The Beacon Investing Company. Dr. Deren informed the Council that the Beacon Investing Company had been developed under the auspices of the Council of New England State Medical Societies and that all physicians residing or practicing in the New England states have been or will be circularized as to the availability of this investment program. Having heard Dr. Deren's remarks on the planning and establishment of the Beacon Investing Company, it was VOTED: That the Council express the opinion that this plan is apparently reputable, on the basis that it is sponsored by the Council of New England State Medical Societies.

b. The "Special Report". A special report (1961) by the Committee on various types of insurance available to members of the Society through CSMS and the county medical associations had been returned to the Committee by the Council for further study on April 12, 1961. Dr. Deren informed the Council that the findings of the Committee has been reviewed and were believed to be valid. On his recommendation, it was VOTED to accept the "Special Report" as originally submitted in 1961.

c. Other matters. Dr. Deren also reported on the Committee's findings on several matters referred to it by the Council concerning malpractice insurance coverage. The following action was taken:

It was VOTED to publish in CONNECTICUT MEDICINE the information provided by Dr. Deren at this meeting, and to publish other pertinent information provided by the Committee on Medical Economics and Insurance which is of interest to members of the Society.

LEGAL COUNSEL-CORPORATE PRACTICE OF MEDICINE. Having been apprised by Attorney Edward L. Marcus, New Haven, that a report on the corporate practice of medicine by hospitals is being prepared and will soon be ready for submission to the Council, it was VOTED that the Chairman be directed to appoint an ad hoc subcommittee to receive from and review with Mr. Marcus the report he will have prepared, and to then inform the Council as to the findings of the report. The Chairman appointed the ad hoc Subcommittee as follows:

James R. Cullen, Hartford—Chairman.
Clifford E. Wilson, Norwich.
David A. Grendon, Sharon.
Frank K. Abbot, Waterbury.
Michael A. Dean, Bridgeport.

CONNECTICUT MEDICAL SERVICE, INC.

a. The Chairman and members of the Council reviewed and discussed the recent liaison meeting between the full Council (21 members) and the Board of Directors of CMS, Inc. It appeared to be the general feeling that the Council representatives had explained, reaffirmed and enlarged upon the suggestions relative to amending the Preferred Contract offered to the CMS Board by the Society's House of Delegates (July 19, 1962), and that it is expected the Board will inform the Council of such actions as it may be possible for the Directors to take on the suggestions of the House.
b. The Council was informed of some thoughts Denis S. O'Connor, New Haven, presented regarding possible actions which "would bring members of . . . (several) specialties into more complete acceptance of the CMS philosophy." Expressing the belief that the recent suggestions offered to the CMS Board of Directors by the House of Delegates were in considerable harmony with Dr. O'Connor's ideas in this matter, it was VOTED to accept these suggestions as information.

CONNECTICUT 65 EXTENDED HEALTH INSURANCE. Complying with a request of Mr. George E. Light, Chairman of the "Committee of Six" insurance executives who developed the Connecticut 65 plan, it was VOTED to appoint an ad hoc group of Society representatives to meet with insurance representatives to discuss progress and problems of the plan. The ad hoc group was appointed as follows:

Thomas M. Feeney, Hartford (James R. Cullen, Hartford, alternate).
Ellwood C. Weise, Sr., Bridgeport.
John N. Gallivan, East Hartford.
William R. Richards, New Haven.
Arnold H. Janzen, Hartford, Chairman of the Committee on Third Party Payments (or a member of the Committee he may designate).

With the exception of Dr. Janzen or his Third Party Payments Committee designate, these appointees are physicians who met with the planning "Committee of Six" in 1960-61, when the Connecticut 65 concept was first discussed. The ad hoc group will report to the Council on the meeting.

PROXY VOTING IN MEMBERSHIP CORPORATIONS. It was VOTED to take no action on the suggestion that the Society's legal counsel might be requested to check Connecticut statutes on the matter of proxy voting in membership corporations (such as CSMS).

COMPAC. As information, the General Manager provided the Council with a progress report on the organization and activities of the Connecticut Medical Political Action Committee to date. Members of the Council also reported on COMPAC activities in their local communities and areas. These reports called for no action by the Council.

In the belief that a useful purpose would be served by informing members of the Society as to the mechanics of registering and voting, the platforms of the major parties, and the announced position of candidates on some of the major issues in the current campaign, it was VOTED to direct the Committees on State and National Legislation, the General Manager and the Director of Public Relations to carry out a "political education" newsletter program during the months of September and October. It is understood that the objective of this program is to implement the belief of the AMA's house of Delegates that physicians should become better informed on matters pertaining to government at all levels, and be encouraged to participate more actively and intelligently in the civic and political life of their communities.

COMMITTEE ON MENTAL HEALTH.

a. Reporting on a matter referred to the Committee in 1961, John Donnelly, Chairman, advised the Council that the Committee recommended no further action in regard to the question raised by a member as to the propriety of charges being made to private patients in a public-supported psychiatric clinic (The Mid-Fairfield Child Guidance Clinic). Received as information was the opinion of the Committee that "it viewed with concern any situation in a public-supported clinic wherein, as a result of patients who can afford private care being seen, patients who cannot afford private care cannot receive treatment because of the shortage of staff (making it not possible) to meet the needs of all patients applying."
b. It was VOTED to authorize Dr. Donnelly, Chairman of the Committee, to develop a "steering committee" of five members of the Society to

work with similar "steering committees" of the Connecticut Chapter of the American Psychiatric Association and the Connecticut branch of the National Association for Mental Health in making plans for the First National Congress on Mental Health and Illness, to be held in Chicago in October, 1962, under the joint auspices of the American Medical Association, the American Psychiatric Association and the National Association for Mental Health.

CONNECTICUT CONGRESS ON MEDICAL QUACKERY. Dr. Max Caplan reported that all plans have been completed to hold this Congress on September 26, 1962. It was VOTED to authorize the paymen of $200.00 to the American Medical Association for the purpose of obtaining insurance coverage against possible suits for libel or slander relating to the Congress, such coverage to be obtained by inclusion of the Society under the AMA "blanket" policy for this affair *only*.

NOMINATIONS FOR AMA COUNCILS, AND EDITORIAL BOARDS. It was VOTED to recommend nominations to the AMA Board of Trustees as follows:

Council on Rural Health—Gaert S. Gudernatch, Sharon; Norman H. Gardner, East Hampton.

Council on Occupational Health—John N. Gallivan, East Hartford.

Council on Legislative Activities—Ellwood C. Weise, Sr., Bridgeport.

Council on Mental Health—John Donnelly, Hartford.

Council on Foods and Nutrition — Max Caplan, Meriden.

Archives of General Psychiatry—Frederick C. Redlich, New Haven.

Committee on Medical Aspects of Sports — Allan J. Ryan, Meriden.

AMA COUNCIL ON MEDICAL SERVICE. It was VOTED to inform the AMA Council on Medical Service that the Connecticut State Medical Society has a number of committees dealing with various aspects of medical care and medical care financing, but that it does not have a single committee which considers such a broad area as "the problems of patient care, medical practice hospital service and medical education." This inquiry was pursuant to an action of the AMA House of Delegates (June, 1962) which charged the AMA Council on Medical Service with undertaking wide-scope study of these matters. The AMA Council is seeking guidance as to how best to proceed with the study.

CANCER COORDINATING COMMITTEE. It was VOTED to accept the resignation of William A. Geer, Stratford, as a member of this Committee and of its Executive Committee. It was further VOTED to appoint Andrew P. Owens, Bridgeport, to replace Dr. Geer in both these committee posts. It was further VOTED to appoint John G. Raymer, Norwich, to the CCC's Executive Committee, replacing William M. Stahl, Jr., Danbury, resigned. Dr. Raymer is already a member of the Cancer Coordinating Committee.

STUDENT MEMBERS. It was VOTED to elect the following Student Members:

Ann Frances Milano, 277 Elm Stret, West Haven.
University College Galway—Class of 1966.
Pre-Med.: Manhattanville College and Wesleyan University.

Parent: Nicholas A. Milano, M.D.

Madelyn Frances Milano, 277 Elm Stret, West Haven.

University College Galway—Class of 1966.

Pre-Med.: Manhattanville College and Wesleyan University.

Parent: Nicholas A. Milano, M.D.

1963 ANNUAL MEETING OF THE SOCIETY. The Council was informed by Drs. Bradley and Gorman that the Board of Directors of the Fairfield County Medical Association had voted to waive the privilege of holding the 1963 Annual Meeting of the House of Delegates in the Fairfield County area and, instead, permit this meeting of the House to be held in conjunction with the Scientific Assembly of the Society at the Hotel Statler Hilton, Hartford, April 30 through May 2, 1963.

MEDICAL ASSISTANCE FOR THE AGED. The General Manager reported that he had submitted a series of eight questions to the Commissioner of Welfare in an effort to obtain information as to how the MAA (Kerr-Mills) program was working in Connecticut. He stated he had received a telephone reply to his letter from the Welfare Department's Medical Director, Dr. Connors, who informed the General Manager that Mr. Shapiro had asked him to convey the message that (in effect) he would "have to put two or three people to work full time for a week or more in order to answer the questions submitted." Excerpts of a report filed by Kenneth F. Brandon, Chairman of the Committee on State Legislation, were read. Following a discussion of this material and other information supplied by individual members of the Council, it was felt that the effectiveness of the MAA program during the first four months of its operation was doubtful and that it would be desirable to obtain more specific facts and figures from the Welfare Department. It was therefore VOTED to direct the Chairman to appoint an ad hoc committee to invite Commissioner Shapiro and Dr. Connors to meet with it for the purpose of examining in depth MAA experience thus far. The Chairman appointed the committee as follows:

Committee on National Legislation—Ellwood C. Weise, Sr., Bridgeport, Chairman.

Committee on State Legislation—William E. Gatlin, Middletown.

Advisory Committee to Commissioners of Welfare, Finance and Control — Jack H. Galen, Derby; Harold D. vonGlahn, Old Lyme.

Committee on Third Party Payments—Arnold H. Janzen, Hartford; Max Caplan, Meriden.

Council—Stevens J. Martin, Hartford; John R. Egan, Old Saybrook; William R. Richards, New Haven, ex-officio.

COMMITTEE ON PUBLIC HEALTH. It was VOTED to send a letter to Governor Dempsey, as recommended by the Committee on Public Health, which would ask the Governor to review the salary structures for physicians employed by the State Department of Health as to its adequacy in terms of personal remuneration and its competitive status in attracting qualified personnel to the state.

RECOMMENDATION ON IMMUNIZATIONS. Submitted by Orvan W. Hess, New Haven, it was VOTED to refer the following motion to the Committee on Public Health for evaluation and report to the Council:

MOTION: "In view of the recent occurrence of smallpox and the recognized possibility of spread of communicable disease by international travelers, it is recommended that the Committee on Public Health reconsider the need for re-immunization among our adult population and, if indicated, implement methods which will offer protection for the Public."

GENERAL MANAGER. It was VOTED to postpone action on a motion which had to do with the appointment by the Chairman of an "action committee" to assist the General Manager in the performance of his numerous duties.

DATE OF NEXT MEETING. The date of the next meeting will be Thursday, September 20, 1962.

1962 MEETINGS

October 18—179th Semi-Annual Meeting of the New Haven County Medical Association, to be held at Waverly Inn, Cheshire

November 6-7-8—New England Postgraduate Assembly, Statler Hilton, Boston.

November 25-28—Clinical Meeting, American Medical Association, Los Angeles.

1963 MEETINGS

June 16-20—Annual Meeting, American Medical Association, Atlantic City.

April 30-May 1-2—171st Annual Meeting, Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

Edward Rogow, Age 32 — M.D. University of Geneva (Switzerland) 1957 — Specialty Internal Medicine.

PLACEMENT OPPORTUNITIES

Opportunity available for physician in Medical Department of large plant (population approximately 8,000) in aerospace equipment industry in southern New England. Duties and responsibilities involve participation in an active employee industrial health and safety program. Modern facilities and equipment. Present staff composed of two physicians with a nursing and technical staff of nine people. Previous experience in occupational medicine is not necessary.

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Clinical Medicine

The Teaching Of Clinical Medicine; A Look At The Next Fifty Years

Franklin H. Epstein, m.d.
New Haven

The problems of teaching clinical medicine in the 21st century undoubtedly will be twofold. First of all, there will be the challenge of keeping the worthwhile features of our present system (and this may be harder than one might think). In addition, we will have to meet the specific and unique challenges of the next half-century. Clearly the most pressing of these will be to integrate the explosive growth of biological technique and theory into the investigation of disease and the practice of medicine.

I shall mention only a few of the desirable characteristics of our present system of clinical teaching. Of the formal scheduling of curriculum, I suggest only that the elective system should be retained and extended. It permits a flexibility in teaching and learning that is the envy of less fortunate faculties. It is ideally suited to encourage experimentation in teaching (though its advantages in this respect have sometimes been neglected). Without the cumbersome procedure of a curriculum committee, it allows immediate exploitation of outstanding new faculty members who may offer their particular specialty to a small group of interested students. Equally important, it permits such offerings to fall of their own weight when they are no longer of value.

There is no one, I believe, who would dispute the value of the clinical clerkship. If one had to sum up in a phrase the major advance in clinical teaching in the *last* 50 years, I think one would say, "Bedside teaching, in small groups, by full-time clinicians who are also investigators." Such a system has one important drawback. It is prodigal of faculty time. It presupposes a high ratio of faculty to students. In my own experience, for example, five or six students on ward rounds is close to a maximum. Four is perhaps an optimum figure. In larger groups, one is tempted to deliver lectures on abstractions of diseases, to scatter spurious pearls, to resort to showmanship as a substitute for the careful, honest and meticulous unravelling of a patient's particular complaints and distinctive physiological disorders that is the core of what there is to teach at the bedside. If the clerkship is to do its best job in teaching, the faculty must be numerous and unhurried.

Part of the potency of the clerkship as a pedagogic tool lies in the assignment of responsibility to the student. Learning is best accomplished when work-up and presentation are not meaningless exercises. But we must guard more carefully in the future against exploiting the student as a source of cheap labor. While crucial examinations of the urinary sediment or of a smear of blood or sputum should be considered as mandatory as the physical examination, repeated routine tests should be assigned to the clinical laboratories or the hospital (as they increasingly are at present). Surgical operating technique is best taught in detail after graduation. Our students on Surgery have too long spent fruitless hours clinging to retractors on the periphery of an operating table. I predict that in the next fifty years, they will spend more time in small groups with instructors on the ward or in the Emergency Room, learning how a surgeon examines an abdomen, how he prepares a patient for a major operation, how he prevents and treats postoperative complications, how he thinks about incisions, tissues, wound healing, operative risk and operative stress—in a word, how he regards the *physiology* of surgery.

What, after all, do we want to teach in the clinical years? Techniques change rapidly. Ways of thinking about patients, ways of behaving in the face of a problem, do not. Perhaps the most

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Delivered at a meeting of the Association of Yale Alumni in Medicine, February 17, 1962.

DR. FRANKLIN H. EPSTEIN is Associate Professor of Medicine, Department of Internal Medicine, Yale University School of Medicine.

important things we have to teach lie in the realm of attitude, and these can be taught best by example.

First of all, in an age of compartmentalization and of specialized techniques, students should be taught again and again that doctors exist to help people. Doctors are responsible for people. This attitude is not encouraged by diffusing responsibility on the ward. The attending physician should be and should act responsible for the patients whom he sees on rounds. Responsibility cannot be taught except by example. Hundreds of Yale students were shaped by seeing the Sterling Professor of Pediatrics, Grover Powers, come in at midnight to examine, puzzle over and worry about, a sick baby. One of the most impressive things about Dr. John Peters (to a generation of admiring and exasperated interns) was the intense concern about the details of patient care that preoccupied a great scientist.

A second attitude we must encourage is one compounded of critical doubt and humility. These are not, perhaps, conspicuous virtues of the medical profession. A student should learn that there is much we do not know about the simplest things; that knowledge is not a state, but a process. He must learn to question basic assumptions; in ten years, half of those he has learned as gospel will be overturned. He must learn how to learn from the patients he sees. He must learn to be suspicious of dogmatism in his teachers and in himself. This too must be taught by example. We must have teachers who are actively occupied in learning, in questioning, in producing new knowledge and grappling with old concepts—and who view themselves and their profession critically and are not afraid to say that they do not know.

A third attitude that can be taught in the clinical years is uniquely the contribution of the expert clinician and clinical scientist. It is the habit of thinking logically, in physiologic terms, about a patient's symptoms and his disease. It might be called the essence of the clinician's science. It is the kind of approach that seeks the reason for a symptom, rather than finding satisfaction in the memorization of a syndrome. It has to do, for example, with the order in which one should administer or discontinue drugs, to extract most information from a particular patient's response. It contains the secret of how to learn from a patient. It flowers in the arts of diagnosis and treatment. "Thinking physiologically" is a skill that does not flow automatically from mastery of, say, biochemistry or immunology. Again, it is best taught by example. Many of you will remember Dr. Francis Blake placing five temperature charts side by side to reveal a drug fever, or his quiet disdain for the diagnosis that was exotic—but incorrect. And I think we shall have to beware, in decades to come, of excluding clinical clerks through the mechanism of segregated "research wards" from the kind of continuing critical examination of disease that provides the excitement of clinical investigation.

That word, "excitement", brings me to a fourth attitude which it is our responsibility to generate in the clinical years. In Dr. Daniel Darrow's presidential address to the American Pediatric Society[1] he recalled his student days at Hopkins. "James Gamble", he said, "was hard to fathom, for we did not see how he functioned. . . . I knew nothing of the ideas that were fermenting in Gamble's head and were to appear in the papers written with Ross and Tisdale. All this was to be my life work and I knew practically nothing about it. What then did I get out of the finest congregation of investigators in pediatrics that has ever come to one department? I know that I caught a *feeling of excitement* and was sure that the study of diseases of children must be interesting to attract so many first-class men. I know that I felt the exciting things in pediatrics had not already happened, but were going to happen when such men studied disease of children."

It is this intense feeling of commitment, of burning interest, of fascination with something intriguing and important, which is the contribution to medical education of the best men, of the premier departments. It cannot be achieved by any kind of curriculum juggling. The most ingenious rearrangement of courses and hours will not call it forth if the course lacks the essential ingredient. The essential ingredient is a faculty which is excited about the things they teach. And all the schemes for correlative clinics, for longitudinal versus horizontal scheduling, for six-year-track plans, for eleven-month years, are of little significance next to the central question, "Who shall teach".

The answer to this question takes on a special and crucial importance for departments of clinical medicine at a time when the non-clinical sciences, particularly biochemistry, are in a phase of explosive growth. The rapid development of new and exquisitely sensitive biochemical techniques has made attacks on the molecular origins of disease entirely feasible and, in fact, immensely popular. Just read, if you can, any recent issue of the Journal of Clinical Investigation. Clearly, in order to know what is happening on the frontiers of medical research, it is increasingly necessary to understand and to speak the language of biochemistry. If the technological revolutions in the chemistry of genetics, in immunology, in biophysical measurements, are to have their fullest impact on the study of disease and the teaching and practice of clinical medicine, the faculties of the clinical departments must be skilled in teaching them and in their application. And this is an immediate and insistent problem; it must be met, not in the next fifty years, but in the next decade; it must be faced now.

The conjunction of this juggernaut of scientific advance with the traditional body of clinical knowledge has frightened many into accepting a kind of second-best division of labor in departments of clinical medicine. This might be called the polygamous, or two-platoon, approach. Let the laboratory men work in vitro, the more abstruse experiments the better, and concentrate exclusively on their research, the feeling goes, otherwise they'll be handicapped in competition with "basic scientists" working in preclinical departments. On the other hand, clinicians adept with stethoscope or scalpel, but with little interest or ability in research, are assigned most of the teaching chores. The department as a whole *looks* balanced, but the trouble is, no single individual, patient or student, ever has contact with the department as a whole. (I'm afraid that this sometimes includes the departmental chairman).

There are several difficulties built into this concept of clinical teaching. Instead of joining laboratory and ward, it dramatizes their separateness. It creates invidious distinctions between them. No one is quicker than a medical student to sniff the aroma of subtle competition over prestige, the offhand reference to mad scientists or ivory towers, the deprecating remark about mere clinicians who don't know what a milli-equivalent or a K_{max} is. The insistence that a man be *either* a scientist *or* a clinician misses the whole point of the fusion of modern science with the study of disease and the care of patients. Perhaps the worst feature of such a department is that it repels the really good medical students. Fascinated by the complexity and the challenge of sick patients, they will spurn a system which demands that they renounce either the attractions of clinical medicine or the opportunity to investigate the mechanisms of disease with the best techniques available.

Yale can do better than this. The privilege of teaching in a clinical department must be reserved for those who are interested both in patients and in the physiology of disease. To the clinical teachers of the next fifty years, the techniques and the language of biochemistry and immunology, of genetics and epidemiology, will be welcome tools with which to explore the problems suggested by their patients. But the prime mover will be their interest in the phenomena of disease, the physiological mechanism, the sick patient, rather than in the exploratory technique *per se*. Scientists interested in the development of laboratory techniques for their own sake belong in the world of medicine and in a university. But they do not have an important place in clinical departments, as teachers of clinical medicine. Nor should we be satisfied to leave clinical instruction entirely in the hands of practitioners of the art of medicine, however able, who are not themselves deeply committed to the investigation of disease.

Who then shall teach? Those who are fascinated both by the problems of the clinic and the opportunities of the laboratory. We need superb clinicians who are also ingenious thinkers and who possess the meticulous and fastidious persistence required of every good experimental worker. They should be encouraged early to acquire the experimental techniques that promise to illuminate their field of interest but their investigative insights should add another dimension to their clinical interests, making them broader and better, not narrower, physicians.

Can we find and train such people? I am sure we can. For fifty years and more, Yale has specialized in them. More often than not, excellence in one area of endeavor does not stand alone, but is associated with excellence in others. The notion that scientific ability and achievement somehow dries up the milk of human kindness and disqualifies a doctor from taking care of patients with insight, understanding, and compassion, is, I believe, complete nonsense. And the myth that truly significant advances in the science of medicine are only achieved by men divorced from the living, breathing, hurting patient, is equally invalid. The challenge, the excitement, of clinical science appeal to the best of our graduates. We can afford only the best.

When Dr. Ebbert suggested, with his usual mixture of tact and persuasion, that I volunteer for this exercise, I must confess that I was bemused at first by visions of computer diagnosis, of mechanical physical examinations, of curing cancer by prescriptions of synthetic nucleoproteins. But then I remember that it was only fifty years ago that Wilder Tileston came to New Haven. He was a bright and brash young man, full of the newest investigative techniques, and a Young Turk who had just founded the American Society of Clinical Investigation. Forty-one years ago, John Peters came to Yale, imbued with the new scientific spirit, and determined to study the natural history of disease. The excitement these men felt for clinical medicine, and the attitudes they imparted by example, are not out of date in 1962. And I suspect that in the 21st century and beyond, Yale will still need men like Wilder Tileston and John Peters.

REFERENCES

1. Darrow, D. C.: Presidential Address—American Pediatric Society, A.M.A. Journal of Diseases of Children, 94: 359, 1957.

Committee On Maternal Mortality And Morbidity

SEPTIC SHOCK

This 30-year-old white, married female was seen in the emergency room with a history of vaginal bleeding of 20 hours duration. The patient thought she had had a menstrual period 20 days prior but this consisted of spotting for 2 to 3 days. This was not like a "regular period."

On admission blood pressure was found to be 90/60, pulse 80 and of fair quality. The oral temperature was 101°. The patient appeared somewhat cyanotic. She complained a great deal of pain in both legs, radiating from the groin downward. She was given 100 mg. of Demerol in the emergency room after examination. The abdomen was not distended; there was no tenderness or abdominal rigidity. On pelvic examination blood clots were noted in the vagina; the uterus was about the size of a 2½ months pregnancy; the cervix was undilated. The hemoglobin was 60%. Septic abortion was the presumed diagnosis. A transfusion was ordered and adequate doses of streptomycin were initiated.

On the second hospital day the history of a self-inflicted abortion was confirmed by the patient. Bleeding from the bladder was first noted. A dilatation and curettage was done and a considerable amount of placenta-like tissue was obtained. Perforation of the uterus was thought to be established. Therefore the abdominal cavity was explored transabdominally. Upon laparotomy no perforating wound of the uterus was noted; the bladder was opened and no perforation of the bladder was seen. A Foley catheter was inserted in the bladder; the bladder was closed in layers and the operation was completed. Six hours after surgery the patient's condition was described as only fair. She appeared cyanotic. There was no cough; there was no apparent active bleeding systemically or vaginally. The urine was bloody per catheter. She was receiving a transfusion. She had also received 250 mg. of streptomycin and 6,000 units of penicillin four times daily since admission. The blood pressure following surgery ranged from 110/80 to 105/70; pulse 80 to 100; respirations 20 to 35; temperature 100 to 101°. The patient expired suddenly on the day following operation.

Pathology report: A. Microscopic exam of curettings—Much of the material received is blood; there are also necrotic deciduous cells and some polymorph nuclears. There were many large, blue-staining bacteria and morphologically there was little doubt that these were the clostridia group.

B. Autopsy diagnosis was enlargement of the uterus; acute endometritis; recent abdominal incision; sutured incision in the bladder wall; bilateral pleural effusion; pulmonary edema; congestion of the viscera.

C. Diagnosis: Septicemia due to *clostridia perfringens.*

Comment: 1) No cultures were taken. In any case in which self-induced abortion is suspected the taking of cultures should be mandatory. Microscopic examination of the curettings or even the material in the vagina frequently pays dividends. A gram-stain study of the vaginal contents on admission might have saved this patient's life.

2) One wonders why the laparotomy was carried out. A cystoscopic examination would have told as much about the bladder and a posterior colpotomy or culdocentesis would have shown that a laparotomy was not necessary.

3) Whenever there is any particular suspicion of a self-induced abortion, medical consultation should be obtained immediately if only from a medicolegal protection standpoint. Hospital authorities should be appraised of the situation and arrangements should be made to notify the police.

4) The nature of the bleeding both from the bladder and the cervix should have raised the question of afibrinogenemia. Whether this possibility was entertained or not is a moot question. Certainly no laboratory studies were made to rule it out. In a patient as ill as the one described, the initial antibiotic therapy should certainly have been by the intravenous route and subsequent therapy much more vigorous.

Concensus: The course here may have been unavoidable but surely more effort to establish a diagnosis of *C. perfringens* earlier, possibly the use of antitoxin and the more vigorous use of antibiotics might have altered the course.

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LETTERS TO THE EDITOR

Hartford, August 30, 1962

To the Editor:

There are some insurance companies who through indefinite delay of reimbursement to their clients for medical expenses, and through endless discussions with the doctors directly, try to make the latter understand what treatment they should prescribe to the patients, how many of them and what the charges should be. By doing this they are destroying the only valid argument there is against socialized medicine namely, the preservation of the traditional doctor — patient relationship. Such an insurance company is thus dealing a mortal blow to private enterprise.

Doctors have sworn that their first consideration will always be the health of the patient. If an M.D. before deciding on a treatment has to take into consideration the eventuality of an insurance company not liking his prescription, then it is no more the patient's health that has his first consideration, but rather the desire to please the insurance company. I cannot envisage a self-respecting M.D. to do such a thing, nor can I see an honest insurance company to expect it from doctors.

Insurance coverage for medical expenses is a wonderful thing and we doctors in general, are very much in favor of it. However, whether it is procured by the private industry or by the Government, it must at all cost preserve the absolute independence of doctors and give them a free hand in the way they think it best to treat their patients. To do otherwise, is to undermine the very principle of insurance, by lowering the quality of medical care instead of improving it. The latter, after all, is the primary reason of insurance.

Sincerely yours,

Marcel Thau, m.d.

New Haven, August 30, 1962

To the Editor:

To increase public understanding of the aims, methods and achievements of medical research, the Connecticut Society for Medical Research has prepared five lecture presentations for delivery throughout the state before civic organizations, service clubs and women's associations. Each talk consists of a narrated text with color transparency slides and will take about twenty minutes. Questions and answers relating to the use of the dog in research are appended. The material is factual, timely, narrated for the educated layman and avoids presentation of gory or upsetting details. The text adheres to the facts of medical research and avoids controversy.

The titles include: (1) Radio wave control of the heart beat in patients with heart block, (2) Drugs that can control cancer, (3) Hormones that are causing high blood pressure, (4) Plastic parts that restore function lost through disease, (5) How men and animals are sharing the benefits of medical research.

The material was prepared by physicians and veterinarians from several parts of the state, from their own research work. They are anxious to present these talks wherever requested. To the talks they can add the force of personal commitment to the labor of medical research.

However, it is likely that their presentation may be accepted by some who hear it as coming from the "vested interest" of those whose work is entirely bound to animal research. Thus, the reaction may be "Sure, he's in favor of using dogs in the laboratory, because that's his business—but what I'd like to know is: what do our doctors think about this, right here in our town?"

We submit that there is a genuine need for speakers to deliver these talks in their own communities. In each major area of the state a physician has agreed to begin to schedule speaking engagements and to accept offers of participation by volunteer speakers. Notice received by us of interest in this program will be forwarded to these individuals. To all physicians in our state, this Society offers an opportunity to exert in this way a powerful force which will aid medical progress just as certainly as any work done in a research laboratory.

Respectfully submitted,

Michael Hume, m.d.

Section on Education and Public Relations

Westport, August 24, 1962

To the Editor:

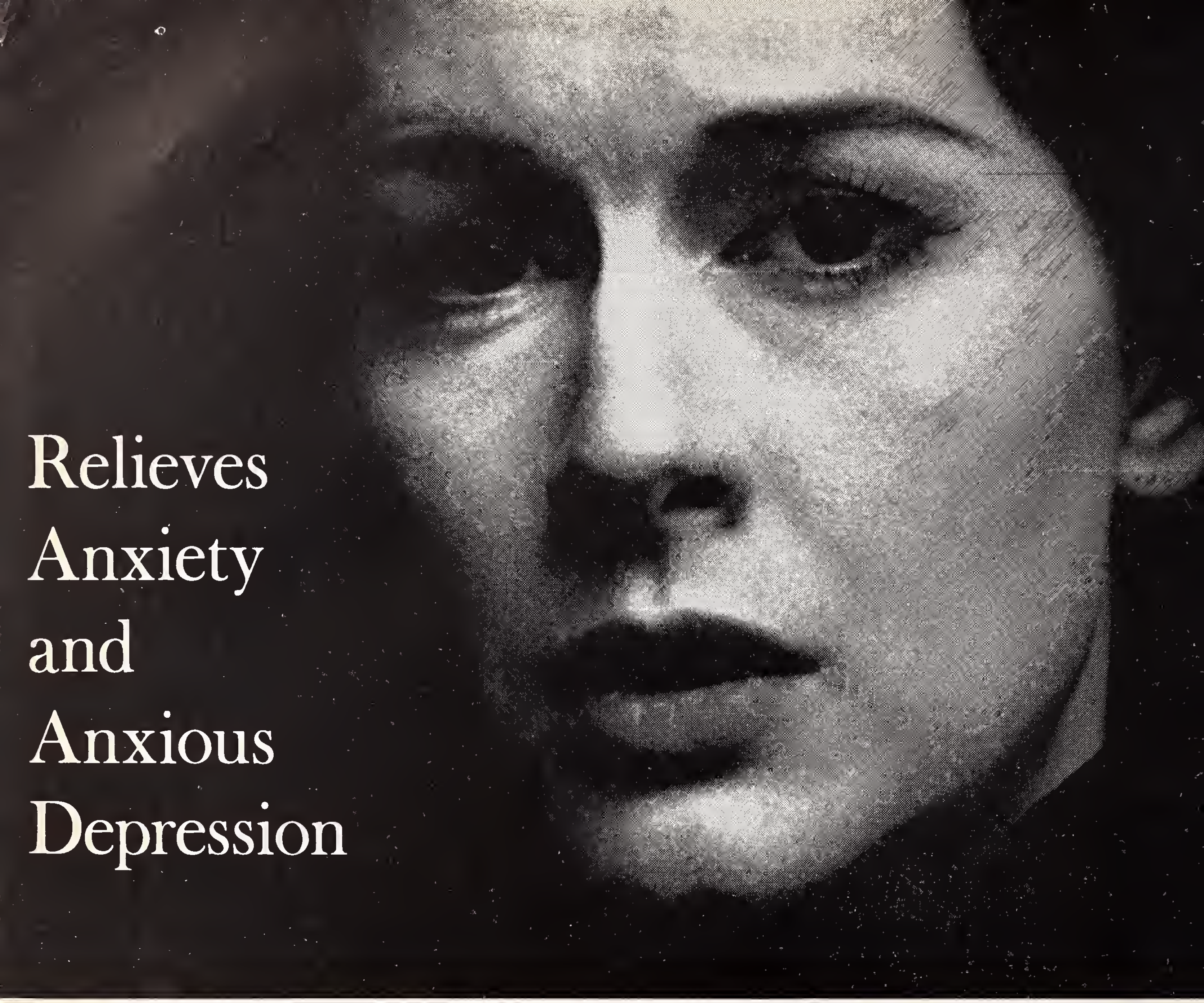
After reading Dr. Walter Schloss' paper, "Pencil in the Penis," which appeared in the August 1962, issue of Connecticut Medicine, I was reminded of a parallel case which I observed many years ago. Unfortunately, I came in contact with the case only in passing and have no follow-up data to report.

In this case, the patient was a man recovering from a severe psychotic breakdown. He had been hospitalized for a most unusual symptom—a bizarre form of anal masturbation during which he inserted small pieces of hardware into the anal region. Abcesses and fistulas formed and required surgery during which screws, nails, bolts and washers were found imbedded in the anal area. The patient, a man in his forties, showed no embarrassment about his practice but avoided talking about it. Even though he was forced to undergo several surgical operations he did not cease his habit. Psychiatric treatment was not helpful at the time.

The practice of inserting objects into the penis and anal area is not uncommon in psychotic children of low intellectual functioning. Pencils seem to be the favorite object, possibly because they are readily available and easy to manipulate. Anal masturbation is also seen in non-psychotic children but limited to the exploration of the anus alone. In these instances, foreign bodies are not inserted and do not lodge permanently under the mucous membrane.

When a patient practices anal masturbation by inserting implements under the mucous membrane the pleasure he experiences through pain is an exaggeration of the milder form of anal masturbation which in children has no pathological significance.

Leon Tee, m.d.



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Doctor's Office

Duane R. Anderson, M.D., announces the opening of an office for the practice of dermatology at 175 Grove Street, Waterbury.

Timothy F. Brewer, Jr., M.D., announces the opening of an office for the practice of cardiology at 38 Woodland Street, Hartford.

John M. Brogden, M.D., announces the opening of an office for the practice of general surgery at 103 Whitfield Street, Guilford.

Kevin V. Dowling, M.D., announces the opening of an office for the practice of orthopedics and diseases of the bone and joint at 140 Woodland Street, Hartford.

Donald S. Dworken, M.D., announces the opening of an office in association with Philip L. Staub, M.D., for the practice of orthopedic surgery at 881 Lafayette Street, Bridgeport.

Herman H. Glassman, M.D., announces the opening of an office for the practice of urology at 449 Farmington Avenue, Hartford.

R. Philip Goyette, M.D., announces the opening of an office for the general practice of medicine at 36 Church Street, Putnam.

E. Treen Hare, Jr., M.D., announces the opening of an office for the practice of ophthalmology at 135 Cherry Street, Milford.

James E. Harshbarger, M.D., announces the opening of an office in association with his father, I. L. Harshbarger, M.D., and James Thurmond, M.D., for the practice of general surgery and gynecology at 144 Golden Hill Street,. Bridgeport.

Walter L. Hogan, Jr., M.D., announces the opening of an office in association with his father, Walter L. Hogan, M.D., for the practice of ophthalmology at 750 Main Street, Hartford.

Martin L. Karno, M.D., announces the opening of an office for the practice of orthopedics at 464 Ocean Avenue, New London.

C. Raymond Kiefer, M.D., announces the opening of an office for the practice of child and adolescent psychiatry at 81 South Main Street, West Hartford.

Gerald Labriola, M.D., announces the opening of an office for the practice of pediatrics at 73 Meadow Street, Naugatuck.

John J. McKeever, M.D., announces the opening of an office in association with Ralph T. Tella, M.D., for the practice of pediatrics at 55 Glenbrook Road, Stamford.

David M. Peterson, M.D., announces the opening of an office in association with Eric H. Blank, M.D., F. W. Goodrich, Jr., M.D., Joseph T. Murray, M.D., for the practice of obstetrics and gynecology at 342 Montauk Avenue, New London.

Carmelo G. Russo, M.D., announces the opening of an office for the general practice of medicine at 300 Franklin Avenue, Hartford.

Edward M. Segall, M.D., announces the opening of an office for the practice of obstetrics, gynecology and sterility at 150 Prospect Street, Waterbury.

Keith D. Woolpert, M.D., announces the opening of an office in association with Edmond R. Zaglio, M.D., Andrew H. Thomas, M.D., and Peter B. Gram, M.D., for the practice of orthopedics at 36 Haynes Street, Manchester.

Around The State

Fairfield County

The New York University Medical Center has just announced the appointment of Dr. Charles Murray Gratz of Greenwich to be associate attending in orthopedic surgery from September 1, 1962 to August 31, 1963.

Naugatuck Valley Medical Society

The latest poll in the Naugatuck Valley Area completed on August 23, 1962 reveals the following statistics on COMPAC:

Naugatuck Valley Medical Society:

Total Members	51
Pledged to COMPAC	50
Undecided	0
Not Joining	1
Participation %	98%

Griffin Hospital Active Staff:

Total Members	48
Pledged to COMPAC	45
Undecided	1
Not Joining	2
Participation %	93.8%

Consulting Staff Griffin Hospital (*New Haven Physicians*)

Total Members	92
Pledged to COMPAC	20
Not Joining or Undecided	72
Participation %	21.7%

Plans were completed for committee work on the part of the Naugatuck Valley Medical Society Woman's Auxiliary for their Second Annual Scholarship Ball to be held this fall. Proceeds from this community wide ball are added to the polio scholarship fund which currently is providing annual scholarships to local college students.

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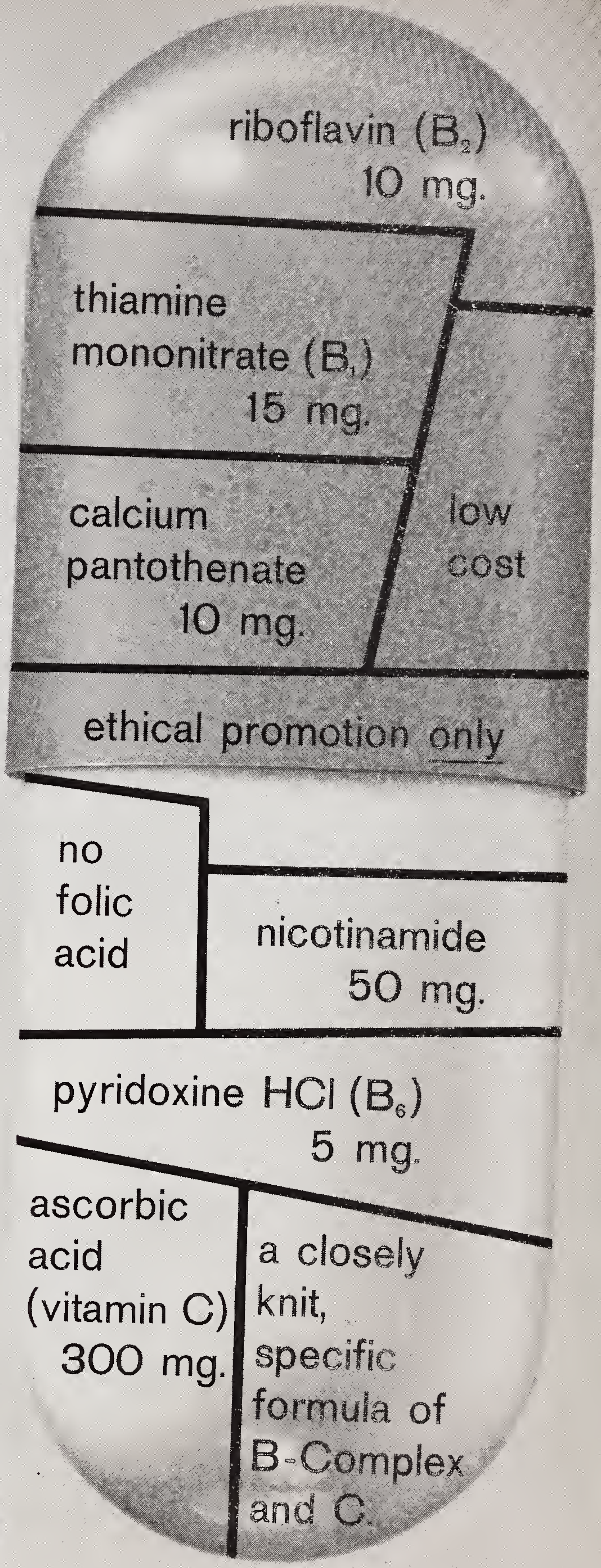
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Woman's Auxiliary to the Connecticut State Medical Society
Wednesday, November 7, 1962
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1962 Conference

Mrs. Norman H. Gardner, president and Mrs. Fritz Meyer, president-elect will represent Connecticut at the 1962 Conference for National Officers, Directors, Standing Committee chairmen, State Presidents and Presidents-Elect held in Chicago September 30-October 3, 1962. Mrs. C. Rodney Stoltz, national president-elect will be the conference presiding officer.

Sweets In The Diet

A complete diet, including ample proteins, fats, carbohydrates, minerals, vitamins, and roughage, is one of the prime requisites for growth and health. Sweets consisting essentially of sugars are likely to be taken in excess because of their highly pleasing flavor. Although sweets are wholesome and valuable foods when given their proper place in a good diet, they supply energy only for current body activity or for storage, and contribute few or none of the specific substances required for good nutrition. Common concentrated sweets used to excess are harmful, especially for children, insofar as they impair the appetite for other highly necessary foods and lead to reduced intake of milk, eggs, fruits, vegetables, meat and cereals.

A too liberal use of sweets or of sweetened carbonated beverages should be condemned on other grounds than their competing with necessary foods. Our dentists tell us that repeated use of these concentrated sugars hastens tooth decay. In fact any food that tends to stick to the necks of the teeth favors decay. Crackers, cookies, chocolate candy are examples. We cannot always brush our teeth after eating, but careful rinsing with water may help remove adherent food. Better still, substituting fruits instead of concentrated sweets for snacks will not only help our teeth but insure a liberal supply of needed nutrients.

This article prepared at the request of and approved by the Sub-Committee on Nutrition of the Committee on Public Health of the Connecticut State Medical Society.

Special Notices

NEW ENGLAND POSTGRADUATE ASSEMBLY

Statler Hotel, Boston
November 6, 7, 8, 1962

Program Committee Chairman: Robert F. Bradley, M.D., Boston

Executive Officer: Mr. Getty Page, Secretary-Treasurer, Council of the New England State Medical Societies, 128 Merchants Row, Rutland, Vt.

General Chairman: Linus J. Stitham, M.D., Dover-Foxcraft, Maine

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SCHEDULE OF LECTURES

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New London, Connecticut

September 4, 1962-June 18, 1963

September 4—Constituents of Cell: Cytoplasm—Dr. Alelstein

September 18—Constituents of Cell: Nucleus, Place of Cytoplasm—Dr. Adelstein

October 2—Nature of Enzymes—Dr. Snodgrass

October 9—Energy Metabolism—Dr. Cahill

October 23—Intermediary Metabolism—Dr. Cahill

November 6—Ionic Exchange Membrane Potentials—Dr Oken

November 20—Introduction to Medical Biology—Dr. Vallee

December 4—Electrophysiology as Applied to Neurology—Dr. Tyler

December 18—Control of the Circulation—Dr. Gorlin

January 8—High and Low Blood Pressure—Dr. Hickler

January 22—Congestive Heart Failure—Dr. Levine

February 5—Myocardial Ischemia—Dr. Gorlin

February 19—Current Concepts of Renal Function—Dr. Guild

March 12—Differential Diagnosis of Hypertension — Dr. Hickler

March 26—Pyelonephritis—Dr. Guild

April 2—Biophysical Aspects of Pulmonary Function—Dr. Wells

April 16—Calcium and Phosphorus Metabolism—Dr. Bernstein

April 30—Anatomic and Physiological Basis for the Neurological Examination—Dr. Tyler

May 7—Embryological, Biochemical and Physiological Concepts of Myelin as they Pertain to the Demyelinating Disorders, Current Concepts of Multiple Sclerosis—Dr. Tyler

May 21—Three Subjects in Hematology;
June 4 Subject Matter Will Be
June 18 Announced in September 1962—Dr. Gardner

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1. Borota, A., and Grinell, R.N.: J. Amer. Geriatrics Soc., 10:413, 1962.
2. Spoor, H. J.: N.Y. State J.M. 58:3292, 1958.
3. Lubowe, I. I.: Western Med. 1:45, 1960.
4. Weissberg, G.: Clin. Med. 7:1161, 1960.

NEW BOOKS IN REVIEW

THE CARDIAC ARRHYTHMIAS by Brendan Phibbs, M.D. The C. V. Mosby Co., St. Louis, Mo. 1961, 128 pp., $7.50.

REVIEWED BY LOUIS H. NAHUM

The book is written to teach physicians who are not cardiologists to diagnose and treat cardiac arrhythmias. It is the author's thesis that since clinical diagnosis of arrhythmias is difficult and electrocardiographic diagnosis simple that therefore every physician must learn to use the electrocardiogram to make an adequate diagnosis. Accordingly, the book is organized along the following lines: (a) a review of basic anatomy and physiology, illustrating the sequence of events and normal and abnormal heart mechanisms. Following this the electrocardiographic representation is described in detail. Then the arrhythmias are described and illustrated by numerous electrocardiograms. The clinical features that are helpful are described and therapy for each arrhythemia with dosages and exact procedures are outlined. At the end of the book some exercises for practice are included.

The book is too simple to be of any great use to cardiologists and is really intended for the general practitioners, anesthesiologists, surgeons and medical students who are already in the clinic and internes. It is unsophisticated and straightforward and quite limited since it deals primarliy with the interpretation of the arrythmias. If in addition to an arrhythma other problems of electrocardiographic interpretation must be gleaned from the record, the reader will have to resort to another book.

In an attempt at simplification, much had to be left out. Thus we find that the left bundle branch is shown to be one structure instead of a superior and inferior branch. The ST segment is a "quiet" period when in fact active repolarization is already in progress. The refractory period is a "fatigue" rather than electrically inexcitable period. Ventricular ectopic beats are shown from right and left ventricles and apex in Figure 14, although the exact origin of such a beat can only be determined from their configuration in leads 1, 2 and 3.

The therapy section is especially inadequate. Thus, for example, mecholyl in 20 mg. doses subcutaneously is mentioned in treating atrial teachycardia, a method inadequate and long ago abandoned. Conversion of atrial fibrillation is suggested of recent origin although a large and damaged heart should be treated with digitalis without attempts at conversion. Finally, in the treatment of a pulseless patient the physician is urged to open the chest at once. Such a radical procedure is now obviated by closed heart cardiac massege.

The final chapter is well organized containing exercises for diagnosis. With so many electrocardiograms available it should not be necessary to show one with inaccurate standardization as in No. 2, Page 117. When all these minor points are said, Dr. Blount who writes the forward is correct when he says that this book is an attempt at simplification, with the hope that any medical school graduate may attain some degree of competence in the interpretation of the common cardiac arrhythmias.

PEDIATRIC DIAGNOSIS by Morris Green, M.D. and Julius A. Richmond, M.D. Second Edition. Published by W. B. Saunders Co., Philadelphia, Pa. 1962, 541 pp. $13.00.

REVIEWED BY VICTOR L. SZANTON

It is pleasurable to see a second edition of this volume on pediatrics. Originally a commendable addition to the practicing physician's bookshelf it is now improved, enlarged and brought up to date. The section on history taking is mandatory reading because of its unexcelled approach to the basic problem of pediatric practice: a thoughtful and humanely elicited history.

The section on speech is well done. However, a firmer statement of the doctor's responsibility to determine the etiology of speech deviations and defects would be strengthening.

There are excellent ideas suggested regarding the home environment of the obese child. The section on jaundice is commendably done and a fitting finale to the volume.

Although it is felt that the book would benefit from greater elucidation concerning epistaxis of allergic origin, the difference between lacrimation and gross tears in the newborn, the use of the otoscope in examining the umbilicus, these are minutae suggested in passing, only to indicate that the reviewer actually read this volume and did so with pleasure.

Because of its realistic approach, "Pediatric Diagnosis" is different from the usual, classic pediatric texts. It is not to be considered a substitute but rather a complementary volume. It will not make a diagnosis—the physician still has that responsibility—but it will most certainly enrich the reader's approach to diagnosis in the practice of pediatrics.

THE NORMAL SKULL: A roentgen study by Robert Shapiro, M.D., Chairman, Department of Radiology, Hospital of St. Raphael's, New Haven, Associate Clinical Professor of Radiology, Yale-University School of Medicine and Arnold H. Jansen, M.D., Assistant Radiologist, Hartford Hospital, Hartford, Connecticut, former Chairman, Department of Radiology, of the Grace-New Haven Community Hospital, New Haven Unit, and the Yale University School of Medicine, New Haven, Connecticut. Hoeber Inc., New York, New York 1960, 257 pp. $18.00.

REVIEWED BY ROBERT M. LOWMAN

The book presents in a single volume a simple, concise survey of the normal roentgen anatomy of the skull and its variant. Much of the material presented by the authors is derived from their own experience as well as from current articles and other excellent texts in the field. The book contains fourteen chapters and an index. The table of contents includes chapters on radiographic technique, development of the skull bones as well as separate chapters on the fissures, foramina, canals, sutures, paranasal sinuses, the mastoids and petrous pyramids. The diagrams and reproductions of the roentgenograms are of good quality and detail. The approach is incisive and well directed.

The book is well designed and is especially recommended for the radiologists. For the beginner in radiology, it brings together much data which will require diligent searching in numerous texts. The purpose of the book is to provide a source of study and reference on the wide range of variability of the normal skull for the student and radiologist particularly those interested in neuroradiology.

TEXTBOOK OF OPHTHALMOLOGY, by Francis Heed Adler, M.D. 7th edition, W. B. Saunders Company, Philadelphia. London, 1962, 560 pp., $9.00

REVIEWED BY R. M. FASANELLA

This edition continues the main purpose, that of providing a text on ophthalmology for the medical student and the nonspecialist. This book, now in its seventh edition was started by Sanford Gifford. This book concentrates on the frequently encountered ocular disorders.

The opening chapter is new and is concerned with symptomatology of eye diseases to help guide the physician to various diagnostic possibilities based solely on the patients' complaints.

Current information on cerebral thrombosis; new material on cerebral arteriosclerosis; new sections on inborn errors of metabolism; involvement of the eye in birth; and radiation burns and blast injuries are written for the general practitioner. Latest therapeutic agents are evaluated. Indications that call for referral to the ophthalmologist are discussed. Included under the newer therapeutic agents are drugs such as Chloromycetin, acetazolamide (Diamox), and the Tetracyclines. Recommended eye preparations and systemic medications in proper dosage are outlined in a chapter called, "Therapeutic Agents Used in Ophthalmology." This chapter includes a discussion of the use of corticosteroids in eye disease.

The chapter on ocular injuries is again directed to the practitioner. It includes Dr. Adler's ideas on the treatment of hyphemia to prevent glaucoma and blood staining of the cornea.

The twenty-four chapters cover anatomy, optical defects, strabismus, glaucoma, neuro-ophthalmology and stresses ocular signs of systemic disease. There are 288 figures and 26 color plates. The printing of the book and the bibliography are excellent.

Dr. Adler is Professor Emeritus of Opthalmology, University of Pennsylvania Medical School; Consulting Surgeon, Wills Eye, Philadelphia General and Children's Hospitals of Philadelphia. He has written one of the finest books on physiology of the eye. He is considerd by this reader as one of the finest of ophthalmologists in this country. As a teacher, he is unsurpassed. He has the capacity of "picking the meat" of any difficult subject and makes it readily understood. Although this book is intended for the non-specialist, it is loaded with a wealth of "pearls" for even the eye specialist. In addition to a discussion of subjects such as the Riley-Day syndrome, Letterer-Siwe disease and the Cogan's syndrome, there are many valuable suggestions and personal choices in difficult eye situations by a world renowned authority. Although this reviewer is not one who is included in "the majority of authors preferring to treat early cases of carcinoma around the lids with radiation" he find it most helpful to know Dr. Adler's present choice in the treatment of difficult conditions such as Serpiginous ulcer, herpes simplex, herpes zoster, keratitis sicca, iritis, hyphemia, and congenital cataracts. Dr. Adler's treatment of subjects is authoritative, concise and reliable.

"ATLAS OF CLINICAL ENDOCRINOLOGY"—2nd Edition. By H. Lisser, A.B., M.D. and Roberto F. Escamilla A.B., M.D. Published by C. V. Mosby St. Louis, Missouri, 1962, 489 pp., $23.00.

REVIEWED BY DENIS S. O'CONNOR

The diagnosis of endocrine disorders could become a very easy matter were the practitioner familiar with the various entities and his power of visual observation properly developed. Because the endocrine disorders, more than any other group of clinical conditions, gives rise frequently to physical abnormalities which are quickly apparent to the vision of the examiner, the diagnosis can be made with "cash register clarity" and because the physical appearance of the endocrine dysfunction individual is the tip off to the diagnosis, this atlas is the beginning of the education of the doctor who would be a good diagnostician in this field.

Descriptive material to lead the doctor to the confirmatory tests and methods of treatment are there but no verbosity clouds the essential data. It is on copious illustration, with excellent descriptive captions, that the authors depend to bring to the practitioner of medicine an understanding of these conditions which if recognized in time, can be so beneficially influenced in their development by the many endocrine products available.

That this is the second edition of an original publication in 1957 is in itself a strong recommendation for the worth of this volume.

No longer is it necessary for the general practitioner to depend upon others for his diagnosis of endocrine conditions.

This is not a handbook because its format is not suited to that use. It is a desk book, or better yet, an invaluable office tool for any practitioner who may be faced with a diagnostic problem, for the endocrine disorders may have internal organ dysfunctions which can be predicated upon the basic diagnosis.

The book is beautifully printed, as are the vast number of illustrations. One can only wish that this book was on the desk of every doctor.

"TREATMENT OF INJURIES TO ATHLETES." By Don H. O'Donoghue, M.D. Published by W. B. Saunders Company Philadelphia, Pa, 1962, 649 pp., $18.50.

REVIEWED BY DENIS S. O'CONNOR

As the reviewer read the first part of this book he was impressed by the clarity of speech which characterized the early pages and assuming that it was written for the lay and paramedical personnel of our school athletic departments was quite enthusiastic.

However, it soon became evident that the approach to diagnosis and treatment was only for those of professional qualifications but that in the hands of lay, or paramedical personnel, a doctor failing to follow the philosophy laid down by the author might find himself under criticism even if he avoided legal measures.

Further on it became evident that much of the material was beyond the average practitioner and really beamed at the orthopaedic surgeon and it later reached a point where one would question what the material had to do with injuries to athletes.

The above criticism is not of the book itself and the material it contains. It is a splendid book, containing a vast amount of valuable orthopaedic material beautifully presented, copiously illustrated using diagrams where diagrams provide the clearest presentation and pictures of x-rays where they are indicated.

The printing is clear and easy on the eyes and all illustrations are adequately captioned.

Unquestionably, there is much which would be helpful for the general practitioner who supervises the athletic activities of our schools. The fully qualified orthopaedic surgeon could use this book with great value in his practice even if he had little to do with athletes.

I do question if it would be in the best interests of all concerned to have this book in the hands of lay persons and the title would tend to indicate that it was published for that group.

THE METABOLIC BASIS OF INHERITED DISEASE by John B. Stanbury, M.D., James B. Wyngaarden, M.D., Donald S. Frederickson, M.D. The Blakiston Division, McGraw-Hill Book Co., New York 1477 pp. $30.00.

REVIEWED BY LOUIS H. NAHUM

The book consists of eleven parts. Part 1 is the introduction dealing with inherited variation and metabolic abnormality by the editors and Human Heredity and its Biochemical Bases by H. Eldon Sutton. Then parts on disorders of carbohydrate metabolism, of amino acid metabolism, the lipidoses, disorders of steroid metabolism, diseases of purine and pyrimidine metabolism and metal metabolism. Part 8 is devoted to diseases of porphyrin metabolism, Part 9 to diseases manifest primarily in the blood and blood forming tissues. Part 10 to diseases manifest primarily in renal tabular transport. The last part is concerned with diseases involving a Deficiency of Circulating Enzymes or Plasma Proteins. An appendix presents methods for coding and filing family records. At the end is a large excellent index of fifty-two pages.

A careful perusal of this highly detailed and carefully presented series of chapters indicates that there are now more than forty different disorders or groups of disorders of "inborn" errors of metabolism which are comprehensively reviewed by experts in the field. Here we find biochemical genetics, biochemistry, and clinical medicine converging to clarify the various disorders of metabolism due to genetic defects. The diseases are thoroughly discussed from every aspect and therapy where possible derived from an understanding of the basic defect. The book is thoroughly illustrated with metabolic maps, figures and diagrams, which make clear the known defects or where they may be found. A special contribution is found in the numerous human pedigrees that help to emphasize the inheritance part of the disease. Against the background of normal human intermediary metabolism and physiology, the authors have succeeded eminently in presenting up to date interpretations of each disease.

The editors have accomplished a herculean task excellently. The book is the present bible on biochemical genetics and an excellent source book in individual genetic disorders. Each chapter is followed by an extensive bibliography of great value to the student who wishes to read further in this exploding and rapidly developing field.

CLINICAL DISTURBANCES OF RENAL FUNCTION by Abraham G. White, M.D., W. B. Saunders Co., Philadelphia, Pa. 1961, 468 pp. $10.50.

REVIEWED BY LOUIS H. NAHUM

This is a clinical book physiologically oriented. As the author states "while the voice is that of the clinician some of the physiologists hand will be apparent." In fact, without renal physiology it is not possible to understand much about the disturbances of renal function. Years ago a book on renal disease would consider etiology, description of symptoms and signs and either no or a feeble attempt would be made at suggesting therapy. Today how the kidney performs its function to maintain the integrity of the volume and composition of the blood is known, and if disorders occur, there develops serious distortions of the body fluids which sooner or later must remit or be corrected if death is not to occur.

It is this knowledge which makes all the difference between one physician and another's approach to renal disease. Knowing renal physiology a physician will readily know whether a patient is suffering from renal dysfunction, what its nature is and what should be done. Occasionally, no time is left to wait for the results of complex investigations before a decision must be made. With this book at hand, it will be possible to quickly attain an insight into what the patient is suffering from and what to do for him.

Although the major part of the book consists of sixteen chapters dealing with the clinical aspect of disturbances of renal function, one should really begin at the end of the book where a series of appendixes lucidly portray the basic physiological, biochemical, and pharmacologic knowledge. Appendix one covers renal anatomy. Appendix two is devoted to renal transport mechanisms and appendix three to pharmacologic mechanisms underlying the action of diuretic agents. Obviously a book devoted to clinical problems for the practical physician must perforce, abbreviate the basic mechanisms which are complex and devote itself to the sick patient. One therefore should not expect a textbook of renal physiology in such a book. The treatment of clinical problems however, is well done and complete. A chapter on hypertension is thorough and adequate. Other chapters such as: Acute renal failure, nephrotic syndrome, the kidney in pregnancy, in surgery, in urology, in heart failure, in cirrhosis, are also thorough and comprehensive.

The average physician can learn much from this book. But what he will carry away in a philosophic sense is the realization that to understand medicine and gain intellectual pleasure from its successful pursuit requires a basic grounding in physiology not just description or symptoms.

A TEXT BOOK OF HISTOLOGY, by J. C. Finnerty and E. V. Cowdry, Lea & Febiger, Philadelphia, 1960, 573 pp. and 374 illustrations, 5th Edition, $11.00.

Reviewed by LOUIS H. NAHUM

This text is a direct descendant of Cowdry, A textbook of Histology 1934, and leans heavily on the text and illustrations of previous editions. The central theme is still the blood vascular system, the great integrator. Preceding the section on blood is an introductory section which provides an orientation of Histology as a discipline, a survey of many common histological methods and an introduction to the concept of the cell as a vital unit. The concept that a generalized cell considered by itself had little meaning as appeared in the first edition, is modified in this edition because progress in knowledge of ultra microscopic structure by use of the electron microscope has demonstrated the great importance of the presence of intracellular structures that are common to all cells and can best be demonstrated by study of single cells.

Interrelation of various body fluids and the structure of blood as a fluid tissue are presented in a chapter on Blood and Other Body Fluids. The basic tissues are brought together in a single section which begins with a chapter on Epithelium and Glands that were not included in previous editions. In the final section one finds a review of the structure of all organs grouped according to systems. Organs in different stages of functional activity are compared so that a dynamic concept of the body emerges. Each chapter is closed by a summary and by a list of recommended references which are mostly summaries in which if the student wished to go to original sources he would find the original papers.

There are more illustrations in this than in the fourth edition including some electron micrographs which make easier visualization of ultra microscopic structure and certainly adds clarity to the cell concept. There are also many plates in color which are conductive to fixing concepts in the student's mind. As a result one finds successfully bridged in this book the old antithesis between structure and function by emphasizing that structure and function are different abstractions of the same dynamic process of living material.

A student with a good microscope and this book beside him can enjoy the fascinating experience of seeing a strange cell or tissue and recognizing its character by a quick reference to this book. Textbooks of this type which take account of the student's immaturity and help him orient himself in microscopic structure quickly are most welcome for the student and gratifying to the teacher. This book should continue the illustrious role which the previous editions have played in educating the young physician.

PHARMACOLOGY & THERAPEUTICS: A Textbook for Students and Practitioners of Medicine and Its Allied Professions, 4th Edition, by Arthur Grollman, Ph.D., M.D., F.A.C.P., Lea & Febiger, Philadelphia, Pa., 1960, 1079 pp., $12.50.

Reviewed by LOUIS H. NAHUM

The first edition of this book was written by Dr. Arthur R. Cushing in 1926. The thirteenth edition was prepared by Dr. Grollman and Slaughter in 1947 but still bearing Cushing's name. A new series was begun by Dr. Grollman in '51 and this is now the fourth edition, a fact which speaks eloquently for the need it has met successfully.

There is little doubt that Cushing's Pharmacology gave physicians and students a new insight into drug action through demonstrating drug alterations in normal physiology. Dr. Grollman has continued this approach in this textbook.

Pharmacology of course is the science of drugs, their sources, their actions, fat in the animal body, their use in medicine and their poisonous effects. All of these are covered in an authoritative way which is worthy of Cushing's illustrious name in the history of pharmacology. The book is divided into nine sections. Part one is devoted to introductory considerations, then drugs acting on the central nervous system, the peripheral nervous system, on cardiovascular, renal, digestive and hematopoietic systems. Chapter V deals with chemotherapeutic agents. Hormones and drugs affecting endocrine function are in Chapter VI. Chapter VII is devoted to vitamins; VIII to water and other inorganic compounds and IX to miscellaneous drugs. At the end of Appendix A dealing with prescription writing which is now in the decline, and Appendix B, classification of drugs according to their therapeutic uses. An extensive index of 60 pages lists all drugs by both common and official names.

The book is meticulously edited and beautifully printed. The author's learning is at once apparent in his historical introduction and his great grasp of the subject in his bibliography at the end of each chapter. It is not merely a fine textbook but an excellent reference book and will be valued by both students and physicians.

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OBITUARIES

Charles L. Dichter, M.D.

1879 - 1962

Dr. Charles Dichter one of Stamford's oldest practitioners, died in his 83rd year. Silently after a brief illness at the Stamford Hospital during sleep he passed away.

He came to our shores from Austria at the age of 13, landing in New York City. He graduated from Brooklyn School of Pharmacy and also received a doctorate degree from the Columbia University School of Pharmacy. Later, he got his M.D. degree from the University of Maryland Medical College in 1905. He interned in the Franklin Square Hospital in Baltimore.

Dr. Dichter opened his medical practice in Stamford in 1907. His pleasant personality and therapeutic skill helped him to obtain a large medical practice and became very much in demand in obstetric cases which came to 5,000.

He was a member of the Stamford Medical Society for over fifty years, as well as the Fairfield County Medical Association, the Connecticut State Medical Society and the American Medical Association.

Dr. Dichter was on the medical attending staff of the Stamford Hospital and later on the emeritus staff at the Stamford Hospital and honorary staff at the St. Joseph Hospital.

He practiced until the very end.

Jacob Nemoitin, m.d.

Franklin M. Goodchild, M.D.

1891—1962

On June 30, 1962, Franklin M. Goodchild died at his home in Willimantic of myocardial infarction.

His death brought to a close a long and varied medical career in the service of his country and fellow citizens. A graduate of the College of Physicians and Surgeons in New York, Dr. Goodchild served as Lieutenant in the United States Navy during World War I, after which he conducted a private practice of general medicine in Brooklyn, New York for a number of years. He then entered the field of industrial medicine; in this capacity he was medical director of the Hoboken Yard, Shipbuilding Division, Bethlehem Steel Company. During World War II Dr. Goodchild was a member of the Medical Department of Remington Arms in Bridgeport, then became university physician at the University of Connecticut at Storrs until his retirement from that post in 1958. Unable to be idle he re-entered private practice in Willington where he was also school physician. He was a member of the staffs of the Johnson Memorial and the Windham Community Memorial Hospitals.

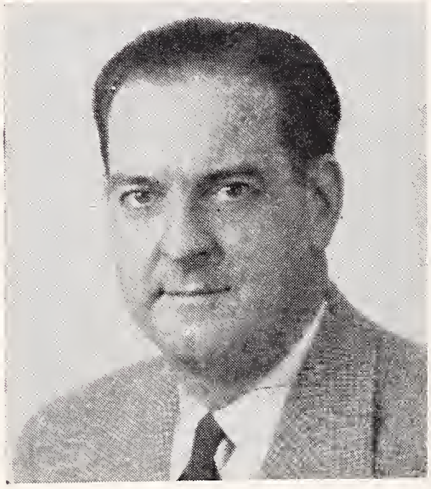
Dr. Goodchild is survived by his widow Edna Lambert Goodchild, three sons Theodore Goodchild of Warwick, Rhode Island, Robert Goodchild of Cypress, and Charles T. Lambert of New York, and six grandchildren.

Franklin M. Goodchild will be remembered by his patients and by his medical colleagues as a kindly and conscientious physician whose medical activities were carried on in his latter years at great physical cost to himself.

William S. Maurer, m.d.

Norbert W. Humpage, M.D.

1911 - 1962



On April 18, 1962 Norbert W. Humpage died suddenly at his home on Wheelers' Point, Highland Lake, Winsted, Connecticut, of a coronary occlusion. He had had a previous coronary in 1960 and after a long convalesence returned to part time practice and finally a few months prior to his death to full practice in ophthalmology.

He was born in Winsted, August 23, 1911. He graduated from St. Bonaventure College in 1934 and from Tufts Medical School in 1936. He served his internship at St. Francis Hospital, Hartford in 1937 and had residencies in ophthalmology and otolaryngology at Brooklyn Eye & Ear Hospital and Wills Eye Hospital, Philadelphia, Pennsylvania.

He served a four year assignment of duty in the U. S. Air Force from 1942 to 1946.

Dr. Humpage opened his office in Torrington in 1946 specializing in EENT but in later years devoted his time solely to ophthalmology. He was chief of ophthalmology at the Charlotte Hungerford Hospital for many years. He became affiliated with the American College of Surgeons in 1951 and the International College of Surgeons in 1952.

Besides his mother, he leaves his wife, the former Mildred Johnston, one son, Albert, a student at St. Bonaventure University, and two daughters, Kathleen and Maureen, both students at Gilbert School, Winsted.

Dr. Humpage had a very extensive practice in Litchfield County and will be sorely missed by patients, friends, and colleagues.

G. V. Mitchell, m.d.

In Memoriam

Alu, Anthony F.—Ansonia; Yale Medical School, 1920; he was a practicing physician in Ansonia for 40 years and was a former school physician for 15 years; Dr. Alu was attending physician for the members of the Lavender football team and was an ardent fan of the team; Dr. Alu was a communicant of Holy Rosary Church and years ago he was the organist at the church; during World War I, Dr. Alu served in the Reserve Officers Training Corps; Dr. Alu was an honorary member of the medical staff at Griffin Hospital, and a member of the American Medical Association, the Connecticut State Medical Society, the Naugatuck Valley Medical Society and the New Haven County Medical Association. Dr. Alu died August 23 at the age of 67, after a lengthy illness.

Donner, Samuel—Hartford; Cornell University Medical School, 1923; practicing physician for more than 35 years in the Hartford area; Dr. Donner was a former chief of staff at McCook Hospital; he was a member of the American Medical Association and the Connecticut State Medical Society; died suddenly while attending a patient on September 13, at the age of 66.

Ludlow, George C.—New Canaan; Harvard Medical School, 1919; Dr. Ludlow had been a member of the Norwalk Hospital pediatrics staff and a public school health doctor; and was a member of the New Canaan Lions Club. He died August 22 at the age of 69, after a long illness.

Missett, James S.—Hartford; College of Physicians and Surgeons of Columbia University,1940; served with the Army Medical Corps, during World War II; Dr. Missett was a member of the staff at St. Francis Hospital; he was a member of the American Board of Internists, fellow of the American College of Physicians, a member of the Hartford County Medical Association, the Connecticut State Medical Society, a board member of St. Francis School of Nursing, a member of St. Thomas the Apostle Holy Name Society and the Serra Club International. Dr. Missett served as institutional representative of Boy Scout Troop 103, West Hartford; died September 5, at the age of 52.

Murphy, Paul D.—Newtown; New York Medical College, 1948; Dr. Murphy was a psychiatrist on leave of absence from his work at the Fairfield State Hospital; he served in the U. S. Army during World War II. Dr. Murphy was a member of the American Psychiatric Association and a newly elected member of the Connecticut State Medical Society. He died August 13 at the age of 38.

Connecticut Medicine

Connecticut State Medical Journal

VOLUME 26, NOVEMBER 1962, NUMBER 11

Roy N. Barnett and Leanor Haley **Listeriosis In Connecticut**

Arthur H. Briggs and William C. Holland **The Chemistry Of Heart Failure And Digitalis Action**

Alan Lerrick **Hashimoto's Disease And Carcinoma Of The Thyroid**

Harry W. Parks **The Salmonella**

R. A. Maxwell **Clinical And Experimental Pharmacology Of Sympathetic Blocking Agents**

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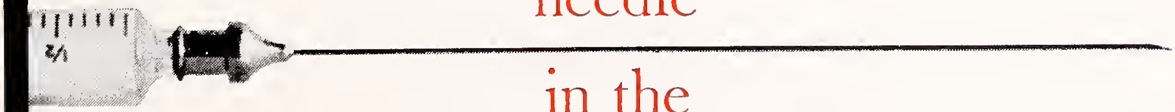

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REFERENCES: (1) *Roseman, E.:* Neurology **11**:912, 1961. (2) *Bray, P. F.:* Pediatrics **23**:151, 1959. (3) *Chao, D. H.; Druckman, R., & Kellaway, P.: Convulsive Disorders of Children, Philadelphia, W. B. Saunders Company, 1958, p. 120.* (4) *Crawley, J. W.:* M. Clin. North America **42**:317, 1958. (5) *Livingston, S.: The Diagnosis and Treatment of Convulsive Disorders in Children, Springfield, Ill., Charles C Thomas, 1954, p. 190.* (6) *Ibid.:* Postgrad. Med. **20**:584, 1956. (7) *Merritt, H. H.:* Brit. M. J. **1**:666, 1958. (8) *Carter, C. H.:* Arch. Neurol. & Psychiat. **79**:136, 1958. (9) *Thomas, M. H., in Green, J. R., & Steelman, H. F.: Epileptic Seizures, Baltimore, The Williams & Wilkins Company, 1956, p. 37.* (10) *Goodman, L. S., & Gilman, A.: The Pharmacological Basis of Therapeutics, ed. 2, New York, The Macmillan Company, 1956, p. 187.*

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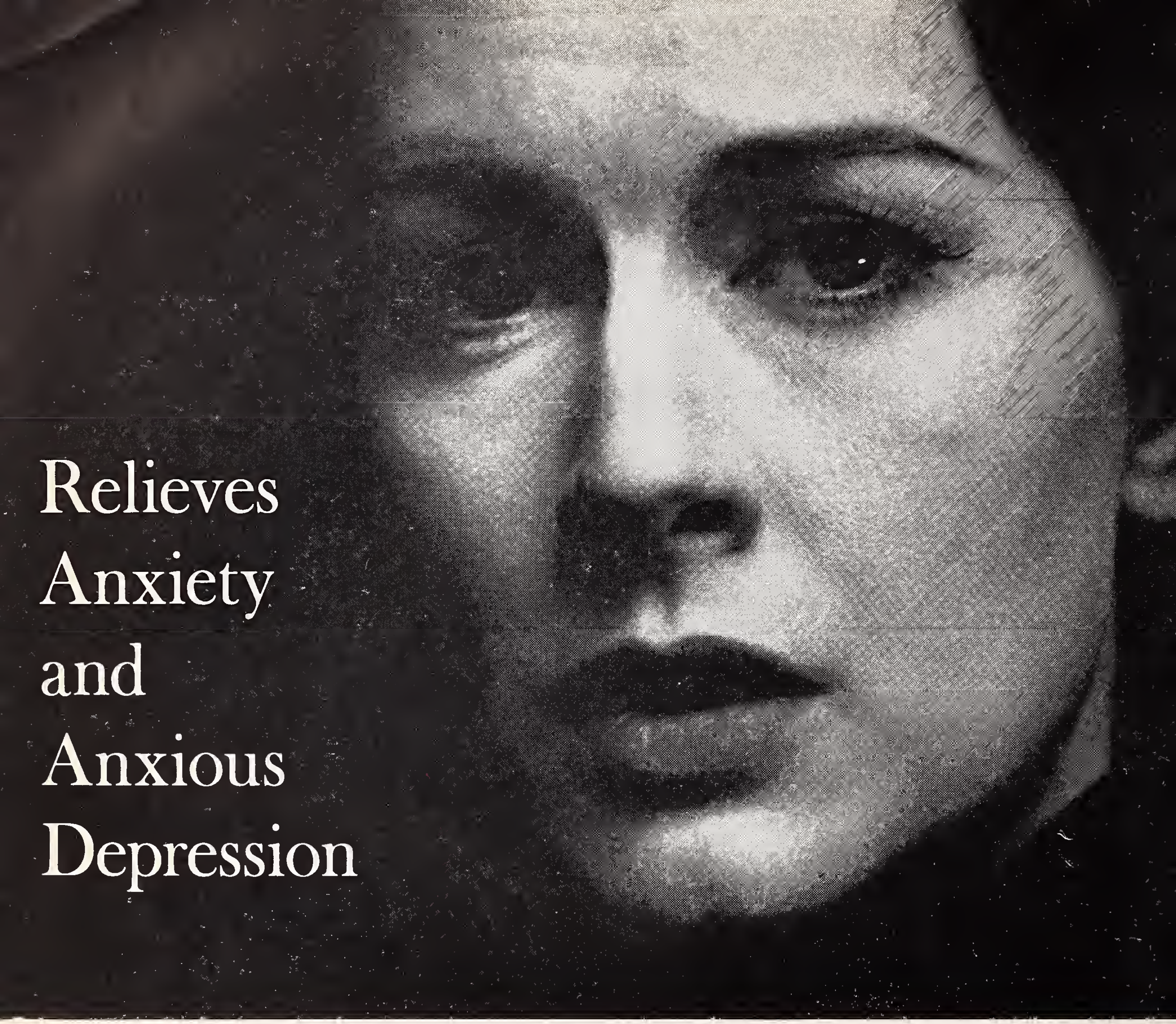

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Listeriosis In Connecticut

ROY N. BARNETT, M.D.
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New Haven

THERE are few bacteria which "trip up" the bacteriologist as neatly or as often as *Listeria* monocytogenes, the causative agent of listeriosis, an infectious disease of man and animals. This disease is world-wide in distribution.[1] Although some of the earliest cases were reported from New Haven Hospital[2] there have been few subsequent reports from Connecticut. A single case of Listeria endocarditis was treated successfully in 1954 at Grace-New Haven Community Hospital; this was reported by Hoeprich and Chernoff.[3] The following additional cases are known to the Epidemiology Section of the Connecticut State Department of Health[4] because positive cultures were examined in their laboratory.

1954—64 year old male; CNS involvement; Waterbury
1955—Newborne; meningitis; Rockville.
1956—Newborne; meningitis; Hartford.
1957—Newborne; meningitis; Hartford.
1959—33 year old pregnant woman; bacteremia and spontaneous abortion; Hartford.
1961—62 year old male; aortic thrombus; New Haven.

The purpose of this paper is to review 4 cases seen in two Connecticut Hospitals in 1961 and to describe procedures for isolation and identification of Listeria.

Case I

This 68 year old retired physician was admitted to Grace-New Haven Community Hospital on January 4, 1961. In the past he had been an alcoholic from 1940 to 1945 but had not imbibed since. He was known to have had hypertension for 40 years. Ten days before admission he developed fever, nausea and vomiting. Three days before admission he showed mental deterioration for which he was admitted to New Milford Hospital. In the three days thereafter he became totally unresponsive and was sent to Grace-New Haven Community Hospital. On admission there he was unresponsive except to painful stimuli, temperature 102, pulse 120, respirations 14, blood pressure 210/120. Neck was stiff, liver edge down 1 finger breadth and there was ankle clonus. The left leg was held flexed; on left plantar stimulation there was dorsiflexion.

Laboratory: WBC 21,900, segs 60 per cent, stabs 11 per cent, urine and stool negative, BUN 25 mg/100 ml., sugar 158 mg/100 ml., CO_2 32.8 mEq/L, chlorides 98, sodium 37, potassium 3.1, bilirubin 0.4 mg/100 ml. direct, 1.12 total, caphalin cholesterol flocculation negative, alkaline phosphatase 8.1 Bodansky units, SGOT 7 units. Lumbar puncture; pressure 570, fluid xanthochromic, protein 1500 mgms, WBC 600/cu mm. of which polys were 75 per cent and lymphs 25 per cent, sugar 50 mgms/100 ml., blood sugar 158 mgms/100 ml. Smear negative for bacteria. Both acid fast bacilli and *Listeria monocytogenes* were found in the cerebral spinal fluid on two occasions.

Course: He was started on streptomycin 2 grams daily and solucortef 200 mgms daily. Streptomycin was also given intrathecally. On January 15th blood culture was negative. He was started on penicillin 10 million units daily I.V. and also INH 400 mgms daily. On January 18th the antibiotics were diminished to streptomycin 0.5 grams daily, penicillin 2 million units and the solucortef was tapered

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off. On January 19th he was somewhat better. On January 21st a drug rash appeared. On January 25th the spinal fluid was almost normal. On January 27th his fever rose to 102 and his white count to 44,000 with 84 polys and 12 stabs. Chest x-ray showed possible left lower lobe pneumonia. Lumbar puncture was negative. The fever came down quickly without further treatment. On January 29th he started to have severe melena which continued so that on February 2nd an emergency subtotal gastrectomy was done after extensive transfusions for a bleeding duodenal ulcer. On February 4th a tracheotomy was necessary. On February 6th spinal fluid was normal. On February 8th he began to have more tarry stools requiring frequent transfusions. On February 18th chest x-ray showed bilateral bronchopneumonia and pseudomonas was cultured from his tracheotomy. On February 19th he was in pulmonary edema. A G.I. series at this time showed a breakdown of the gastrojejunostomy with a sinus tract to the left upper quadrant and to a left subdiaphragmatic abscess. On February 23rd he was given lipomul intravenously soon after which he had fever, hypotension, then a right hemiplegia. He died on February 25, 1961.

Autopsy was performed 5 hours after death by Dr. Gerald Gordon. The primary anatomic diagnoses were: Focal meningitis and meningeal thickening; subtotal gastrectomy with gastrojejunostomy; abdominal wound dehiscence with localized peritonitis and abscess formation around anastomotic site, liver and spleen; emphysema and interstitial fibrosis of lungs; focal pneumonitis and bronchitis; tracheostomy; bacterial endocarditis with microabscesses in heart, kidney and thyroid; metastatic encephalitis with small abscesses and extensive cortical necrosis; intracerebral and intracerebellar hemorrhage; severe esophagitis; severe gastrointestinal hemorrhage; amyloid in liver and spleen.

The subsidiary diagnoses were: Generalized arteriosclerosis with special involvement of aorta, coronary and cerebral arteries; focal myocardial fibrosis; cystic infarcts in caudate nuclei and pons; benign overgrowth and prostate with acute prostatitis.

Postmortem cultures of the peritonitis revealed *Escherichia coli*; of the lungs, *Escherichia coli* and *Staphylococcus aureus*; and of the blood and heart valves *Staphylococcus aureus*.

Case II

This 63 year old white man, a chronic alcoholic, was admitted to Grace-New Haven Hospital on January 20, 1961. Six days earlier he had noted emesis and diarrhea which cleared in a few days. Two days before admission his temperature was 100° F and he had a headache. The day before admission he fell, was disoriented and was found to have a temperature of 105° F for which he received penicillin and tetracycline. The morning of admission he had two convulsive seizures. On examination blood pressure was 140/90, pulse 100, respirations 30-40, temperature 104.2° F rectally. He was comatose and during examination had several tonic clonic seizures. Neck was rigid. He was generally spastic. Deep tendon reflexes were hyperactive and equal. Plantar reflexes were in flexion.

Laboratory data: Hemoglobin 15 gm/100 ml., WBC 11,050/cu mm, polys 75 per cent, stabs 2 per cent, lymphs 10 per cent, monos 13 per cent. Urine negative. Stool for occult blood 4+. Chest and skull x-rays negative. Serum potassium 2.4 mEq/L, bilirubin direct .96 mg/100 ml., total 3.18, thymol turbidity 4.1 units, alkaline phosphatase 4.9 Bodansky units, cephalin cholesterol flocculation 3+ at 24 and 48 hours, bromsulphalein 13.8 per cent retention, calcium 9.1 mg/100 ml., phosphorus 2.4, SGOT 317 units, VDRL negative, total protein 4.7 Gm/100 ml., albumin 1.85, globulin 2.85, creatinine 1.2 mg/100 ml., BUN 17. The spinal fluid was cloudy, pressure 220 cm of water, cells 158/cu mm of which 51 per cent were polys, protein 476 mg/100 ml., sugar 10 mg (blood sugar 104). On smear a few Gram-positive intracellular diplococci were seen and thought to be pneumococci. Culture was positive for *Listeria monocytogenes* which was sensitive to all antibiotics tried. Cultures of blood, urine, tracheal aspirate and stool did not yield Listeria.

Course: He received 2 grams of chloramphenicol and 1 gram of Streptomycin for the first 2 days only, and 1,000,000 units of Penicillin daily the first ten days. On January 21st a few petechiae were noted on the abdomen and left calf. On the 22nd he was more alert; temperature fell to normal and did not rise again. On January 24th an electroencephalogram was diffusely abnormal suggesting moderately severe encephalopathy. Lumbar puncture was done on January 27th. Fluid was pink, pressure 145 cm, 9,000 RBC and 470 lymphocytes/cu mm., protein 400 mgm/100 ml., sugar 103 (blood sugar 102), smear and culture for bacteria and acid-fast bacilli negative. On January 30th he developed a rash thought to be due to penicillin. On February 1st WBC were 7,250, polys 75 per cent, stabs 5 per cent, lymphs 10 per cent, monocytes 9 per cent, heterophile antibodies negative. By this time he was noted to be confused and combative and dilantin was added to his treatment. He was discharged February 3rd with residual mental confusion. Four months later he was slightly better but still had expressive aphasia and signs of cerebellar disease.

Case III

This six year old boy was admitted to the Norwalk Hospital on August 1, 1961 because of fever. He had moved from Elmira, N.Y., to New Canaan, Conn., a month before this illness. He had been swimming a great deal in an artificial pool, and frequently complained of earache. His present illness started with fever up to 103°F for the past three days. The first day be complained of earache and shortly after a bloody discharge appeared from his left ear. He also had a sore throat and nose bleeds. The night before admission he was somewhat lethargic, irritable and the temperature rose to 104° F at which time he developed vomiting and diarrhea with stiffness of the neck. In his past history he was noted to have had asthma for four years and bronchopneumonia three times during the previous two years, the last time during the early months of 1961. He is said to have had convulsions two years ago. There was no relevant family history and there is no record of contact with animals.

On physical examination he was a six year old white boy, well developed, fairly well nourished, acutely ill, febrile, lethargic, semicomatose, dehydrated and presenting a stiff neck. He was lying in a fetal position. Temperature 104°F, pulse 86, respirations 40, weight 43 pounds. Koenig and Brudzinski reactions were positive. The pupils were equal but responded sluggishly to light; the right ear drum was red but no discharge was noted. The throat was mildly congested. Heart, lungs, abdomen, extremities and skin were within normal limits. The reflexes were all diminished. He reacted to painful stimuli and was irritable and lethargic. Impression was meningitis.

Laboratory data on admission were as follows: Hemoglobin 11.3 grams, WBC 24,780, with polys 85 per cent, stabs 6 per cent, normal lymphs 6 per cent, monocytes 1 per cent, juveniles 2 per cent. Urine specific gravity 1.022, albumin 1+, sugar negative, a few WBC. Spinal fluid: sugar 10 mgms/100 ml., cell count 7,100 WBC/cu mm. of which 92 per cent were polys, and 8 per cent lymphs, total protein 185 mgms/100 ml. On direct smear Gram positive diplococci were seen and thought to be Streptococci. Culture was identified as *Listeria monocytogenes*. Serum CO_2 21 mEq/L, chlorides 104, sodium 140 and potassium 3.5. Blood culture—no growth. On August 2nd the urine contained 2-3 red cells and 2-4 WBC. On August 4th hemoglobin 11.3 grams, WBC 6,790 with polys 50 per cent, stabs 1 per cent, lymphs 45 per cent, monos 2 per cent, eos. 2 per cent. Nose and throat culture were negative.

The child was treated with fluids and given chloromycetin 200 mgms, penicillin 600,000 units and gantrisin 2 grams, each every six hours and all intramuscularly on the first dose. Gantrisin was also given intravenously.

Course: The spinal fluid examined the first day showed an initial pressure of 220. The child was obviously extremely sick. By the day after admission he was much better and his temperature fell to 102° F. By the fourth day he was afebrile, pulse normal, respirations normal and he so continued. He went home on the seventh day, apparently entirely well.

When examined five months later he seemed well in every respect and was reported to be doing well in school. Serum Gamma globulin level was 1.12 Gm/100 ml.

Case IV

This 72 year old white man was in good health until three weeks before admission to the Norwalk Hospital. At that time he fell down stairs in a hotel in Pennsylvania striking the left side of his head and left foot. He was admitted to a hospital in Harrisburg, Pennsylvania, where he was found to be aphasic but conscious. On admission there was "a soft spot" apparently a depressed fracture at the left temporal parietal region. His condition deteriorated rapidly during the night and the following day a decompression operation was performed and a large intracerebral hematoma was evacuated from the posterior temporal lobe. A cast was also applied to his foot because of a linear fracture of the left os calcis. After surgery he improved considerably but his aphasia remained. Three weeks later, on December 2, 1961, he was transferred to the Norwalk Hospital for further treatment. At this time he was a well developed and nourished man in no distress, blood pressure 120/80, pulse 82, temperature 96.8° F. There was an area of decompression over the left parietal temporal area beneath which the scalp could be pressed through the absent bone and there was a slightly tender mass about 5 cm in diameter. Pupils were equal and active. There were rales at both bases posteriorly. There was a sacral bedsore. The heart and abdomen were intact. There was a cast on the left leg up to the knee. His deep reflexes were equal but markedly hypoactive and he had a pronounced aphasia. The abdominal reflexes were absent. There was a positive right Babinski; the left Babinski could not be tested. An indwelling catheter was in place. Admission hemoglobin was 11.5 grams/100 ml., WBC 12,900/cu mm., polys 71 per cent, stabs 8 per cent, lymphs 19 per cent, basophils 2 per cent, urine specific gravity 1.027, albumin 1+, 2 to 3 RBC and innumerable WBC. VDRL negative. On December 4th blood sugar 92 mgm/100 ml., BUN 29. He was given some sedation and was ordered to be up in a chair a half hour t.i.d. because he seemed to be doing very well. Rather suddenly, on December 5th, temperature rose to 104° F and he became comatose. Blood leukocyte count rapidly rose to 14,740/cu. mm. and then to 24,000 with 96 per cent polys, 2 per cent stabs and 2 per cent lymphocytes. Blood sugar was now 116 mg./100 ml., BUN 25 and urine contained 20 to 30 RBC and 40 to 60 WBC/HPF. Lumbar puncture revealed cloudy yellow fluid, initial pressure 100. Spinal fluid contained 7200 WBC, all of them polymorphonuclears, Pandy 3+, total protein 100 mgms/100 ml., sugar 20 mgms, chlorides 121 mEq/L. Culture and smear revealed *Listeria monocytogenes.* Culture of the bulging decompression area revealed no growth. Antibiotics were started, penicillin 1 million units every two hours, achromysin 250 mgms once on December 5th, twice on December 6th followed by 100 mgms q 2 hours for the rest of his course. Fluids were administered intravenously during the last few days. He was given 90 grams of urea intravenously on December 5th and 6th. On December 6th Ekg. showed sinus tachycardia, CO_2 was 21 mEq/L, chlorides 112, sodium 145, potassium 4.7, gamma globulin 0.8 grams/100 ml. and BUN 192 mgms/100 ml. Pulse and respirations had risen along with the temperature. On December 6th the temperature reached 105.4° F and he was placed in a hypothermia blanket which rapidly brought the temperature down to 96° F but did not alter the pulse or respirations. He went into shock. Despite aramine and digitalization by intravenous route, he died at 6:40 P.M. on December 7th, a central respiratory death.

Autopsy diagnoses were: Scar of scalp; defect in skull, left temporal area; focal necrosis, hemorrhage and encephalomalacia, surface of left temporal lobe; purulent meningitis; cast on left foot; sacral decubitus; focus aspiration pneumonia, all lobes, both lungs, congestion of viscera.

Subsidiary: Scars of heart (microscopic); chronic cholecystitis and cholelithiasis; micro-abscess of prostate; occult carcinoma of prostate.

Autopsy performed by Dr. Hee Yoon.

We should like to thank the following physicians for permission to report cases from their services: Dr. Paul Beeson (Cases 1 and 2); Dr. John Frothingham (Case 3) and Dr. Norman Boas (Case 4).

Discussion

These cases illustrate the wide gamut of manifestations of Listeria infections, none resembling either the infants described by Burns nor the endocarditis patient discussed by Hoeprich and Chernoff.

In Case I tuberculosis meningitis was complicated by Listeria meningitis. Although both forms of infection were readily controlled he succumbed to later complications including peritonitis and staphylococcal endocarditis. In Case II onset was with gastro-enteritis in an elderly alcoholic. Meningeal and cerebral involvement were effectively treated with antibiotics but permanent cerebral damage remained. Case III was a 6 year old boy in whom the organism probably gained access to the meninges via the Eustachian tube and middle ear from heavily used swimming pool water. The uncomplicated meningitis responded completely to antibiotics and there were no sequelae. Case IV was an elderly man in whom severe traumatic cerebral damage followed by surgery was terminated by a fatal purulent Listeria meningitis. Either the surgical wound or a sacral decubitus may have provided entry to the organism.

Microbiology

Listeria monocytogenes is a Gram-positive motile rod 1 to 2 micra long, .3 to .5 micra in diameter. Occasionally it may be coccoid rather than bacillary, giving the appearance of a streptococcus. Although it will grow aerobically it is microaerophilic yielding good growth in 8-10 per cent CO_2. Isolation of Listeria is not difficult unless organisms are scarce or contaminants are present.

The commonest situation in this country is that routine spinal fluid cultures from a patient with meningitis yield unsuspected Listeria. On the usual culture media, blood agar, blood broth and dextrose thioglycollate broth Listeria should yield visible growth within 48 hours at 37°C. When Listeria is specifically sought because of clinical, epidemiologic or bacteriologic information, the material to be cultured should be placed (A) on tryptose blood agar and in dextrose thioglycollate broth at 37°C and (B) in tryptose broth at 4°C (refrigerator). The blood agar plate should be incubated 48 hours before being discarded; the thioglycollate broth should be subcultured every 3 days to blood agar plates for at least 14 days; and the refrigerated broth should be subcultured twice a week for 12 to 14 weeks before being discarded, particularly if the material had contaminating microorganisms. Incubation of Listeria cultures at 4°C is an excellent means of "enriching" the growth, better than any selective medium. Gray[5] demonstrated experimentally that, in instances where primary cultures were negative, material incubated 10 days at 4°C yielded 220 colonies and after 18 days yielded 1400 colonies. Seeliger[1] states that the increase of positive cultures ranged from 22 per cent to 95 per cent when this method was used for the isolation of *Listeria monocytogenes* from oral and genital mucous membranes of man.

The organism will grow on most routine laboratory media. On plates containing human, rabbit, sheep, horse or cow blood the colonies are small and may not be easily seen for 48 hours; they measure 0.2 to 1:5 mm in diameter and are smooth, grayish white and opaque. Beta hemolysis is usually present but may be so slight as to go unnoticed until a colony has been removed for subculture or smear. Gram stain may reveal small slightly curved gram-positive rods or coccoid forms. It is at this point that the bacteriologist may report the organism as a streptococcus or a diphtheroid.

Positive identification as *Listeria monocytogenes* depends on (1) typical motility, (2) production of keratoconjunctivitis in the eye of a rabbit or guinea pig and (3) serologic characteristics.

1. The organism is inoculated in a tube of tryptose or similar broth and kept at room temperature (20°-25°C) for 3 to 4 hours at which time a hanging-drop preparation is made. The organism has a characteristic tumbling, "end over end" motility. When cultures are incubated at 37°C motility is usually absent.

2. A cotton swab dipped into a colony or rich broth growth is briskly rubbed inside the lower eyelid of a rabbit or guinea pig. Within 3 to 5 days purulent conjunctivitis will develop followed by keratitis and corneal opacity. Gram strain of the purulent material will reveal the organisms intra- and extra-cellularly.

3. Serologic typing may be obtained by sending the culture to Dr. M. L. Gray, State Veterinary College, Bozeman, Montana, together with any available clinical and epidemiologic data.

Although little is known of the epidemiology of listeriosis it is believed that animals serve as a reservoir for the agent. It should be considered when fever of unknown origin is found in veterinarians, animal handlers and butchers. It should also be thought of in studying abortions, stillbirths and neonatal death in humans. In all such instances the material cultured should be subjected to the refrigerator enrichment technique described above.

Summary And Conclusions

1. 4 cases of *Listeria monocytogenes* meningitis occurring in Connecticut in 1961 are reported. They illustrate a variety of clinical outcomes; 1 complete recovery, 1 recovery with brain damage, 1 death from the meningitis and 1 death from extensive complications after the meningitis was controlled.

2. Bacteriologic methods by which the organism can be grown and identified are discussed.

REFERENCES

1. Seeliger, H. P. R.: Listeriosis. Hafner, N. Y., 1961.

2. Burn, C. G.: Clinical and pathological features of an infection caused by a new pathogen of the genus Listerella. A. J. Path., 12: 341, 1936.

3. Hoeprich, P. D. and Chernoff, H. M.: Subacute bacterial endocarditis due to Listeria monocytogenes. A. J. Med., 19: 488-494, 1955.

4. Rindge, M. P.: Loc. cit., letter dated Feb. 21, 1962.

5. Gray, M. L., Stafseth, H. J., Thorp, F., Jr., Sholl, L. B., and Riley, W. F., Jr.: A new technique for isolating Listerellae from the bovine brain. J. Bact., 55: 471-476, 1948.

> *Nature offers to all of us inexhaustible wealth, and we have no cause to envy those who preceded us, nor to exclaim as did Alexander in consequence of the victories of Philip "My father is going to leave me nothing to conquer!"*
> —Ramon Y. Cajal, *Precepts And Counsels On Scientific Investigations.*

The Chemistry Of Heart Failure And Digitalis Action

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IT has been a little over 176 years since Withering first introduced digitalis in the treatment of dropsy. Although he himself recognized that digitalis had profound effects on the motions of the heart he originally believed that the important effect of the foxglove was mediated through the kidneys.[1] Since that time we have learned that the main mechanism of the diuresis induced by digitalis results from its action on the heart and that the dropsy of Withering's day was a disease syndrome which we recognize today as a congestive heart failure. The abnormalities underlying this process are still far from clear. However, during the past fifty years, many advances have been made in the study of the physio-chemical events involved in both normal and failing hearts. In this review we will attempt to present some of the great wealth of information pertinent to the problem of the normal and failing heart and the possible mode of action of digitalis.

In order for the heart to perform its duties of pumping blood through the vascular system, it must be able to transform the chemical potential energy of food stuffs into mechanical work. Early workers were aware that the contractile activity of the heart depended upon the presence of oxygen and the metabolism of food stuffs such as carbohydrates, although the underlying mechanisms involved were unknown. Since those times, the main steps involved in the production and conservation of energy from food stuffs have been fairly well established. The production of energy occurs in two major phases. In the first phase small molecules such as glucose, fatty and amino acids are incompletely metabolized to one of three constituents: acetyl coenzyme A, α -ketoglutarate or oxalacetate with acetyl coenzyme A representing the greater amount.[2,3] Through a process of enzymatic decarboxylation and dehydrogenation (Kreb's citric acid cycle) these products are ultimately broken down to CO_2 and hydrogen atoms.[4] The protons and accompanying electrons enter a series of oxidation and reduction reactions known as the electron transport system. This system consists of two flavoproteins, four cytochromes, coenzyme Q, non-heme iron and copper.[5] The electrons derived from the reactions of the citric acid cycle can not enter the chain directly but are first transferred to one of the flavoproteins or to diphosphopyridine nucleotide (DPN). These reduced products can then donate their electrons to the electron transport system through the other two flavoproteins. The protons and accompanying electrons may then be transferred to non-heme iron and coenzyme Q, cytochrome C_1, cytochrome C, cytochrome A, copper, and then finally to oxygen to form H_2O. As one reduced member of the electron transport chain is oxidized by the next member of the chain, energy is released and captured in a chemical bond by phosphorylation of adenosine diphosphate (ADP) to adenosine triphosphate (ATP).[6] This latter process is known as oxidative phosphorylation. In addition, energy is stored in the form of a high energy phosphate bond as creatine phosphate. The evidence available to date suggests that it is ATP which energizes the contractile mechanism. Thus the prime function of the metabolism of food stuffs is to furnish ATP by synthesis from ADP and phosphate. The mechanical work of the heart is achieved at the expense of chemical bond energy of ATP with phosphocreatine acting as an additional reserve or source of phosphate bond energy. For a more detailed discussion the reader should consult additional papers.[3,4,5,6]

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The next question is: How is the energy of ATP utilized for the performance of work? There is now good evidence that the free energy utilizing system of the myocardium is the protein complex actomyosin. In order to understand how the interaction of ATP with actomyosin brings about muscle contraction we must examine the morphological and physiological events that accompany the contractile response.

The functional unit of the cardiac muscle is the muscle fiber which measures 10 to 100 microns in diameter. There is considerable branching and anastomosing of muscle fibers giving the appearance of a syncytium. However, the heart is not a true syncytium in that each branch of the cardiac muscle fiber terminates at an intercalated disk.[7] Electron microscopy reveals that the intercalated disks are continuations of the inner layer of the cell membrane.[8] An intercalated disk consist of two opposed limiting cell membrances and an interposed intercellural space. There appears to be no continuity of cell structure across this space and thus the heart is not a morphological syncytium. The muscle fiber contains bundles of myofibrils which are the contractile units of the cell. There are no boundaries separating the myofibrils in one muscle fiber from the sarcoplasm and thus a free access of various substances to the myofibrils can occur.[9] The cardiac myofibril is an orderly system of overlapping thick and thin myofilaments entirely similar to the myofibrillar structure in skeletal muscle. Recent electron microscopic studies reveal that except for the intercelated disc and certain quantitative differences, cardiac and skeletal muscle are indeed quite similar.[8] Interdigitation of these filaments give rise to the characteristic striations seen under the light microscope. These striations give the appearance of a series of bands lined up side by side. The dark or anisotropic bands are referred to as A bands (see Fig. 1). The light or isotropic bands are referred to as I bands. In the center of the I band there is a thin dark zone called the 'Z' line. In the middle of the A band there is a light region called the H zone. The structural unit of the myofibril is the sarcomere, defined as that portion lying between two consecutive 'Z' lines. It therefore includes one half of an I band at either side of an A band. Electron microscopy reveals that the I band consists of thin myofilaments which begin at the 'Z' line, extend through the I band into the A band and end in the H zone. The A band consists of thick myofilaments which are continuous through the H zone and interdigitate with the thin myofilaments. Periodic cross bridges can be observed as thin transverse links between the thick and thin myofilaments. These cross-bridges are actually extensions of the thick A band filaments and are thought to represent sites of interaction between the two sets of filaments.[10] At the present time it is believed that thick filaments contain all the protein myosin that is present in the muscle while action occurs in the thin filaments. Hansen and Huxley have shown that solutions known to dissolve out myosin from the muscle selectively will dissolve out the thick filaments, leaving the thin filaments behind.[11] Subsequent extraction of actin dissolves away most of the material of the thin filaments.[12] Other protein substances which may be important for contraction have also been found such as tropomyosin and deltaprotein.[13,14] However, the exact role of these proteins and their location has not been determined. Investigations by light microscopy reveal that during stretch and during shortening, active or passive, the two sets of filaments slide past each other, there being no change in the length of any of the filaments until more profound degrees of shortening occur.[15,16] It is believed that in the resting state the cross bridges which are part of the myosin filaments are not attached to the actin filaments. Thus the filaments are free to slide past each other accounting for the high extensibility and relative plasticity of resting muscle. During activity the cross bridges of the myosin filament can attach to sites on the actin filament during which a relative force of movement can be generated. The bridge can then detach and form another attachment at another site on the actin filament if movement is taking place. The energy required for this process probably comes from splitting of the substrate ATP located in actin by the ATPase of myosin. When activity is over, the cross links are broken, ATPase activity ceases and the muscle returns to the resting relaxed state. Most investigators today accept the basic sliding model of contraction.

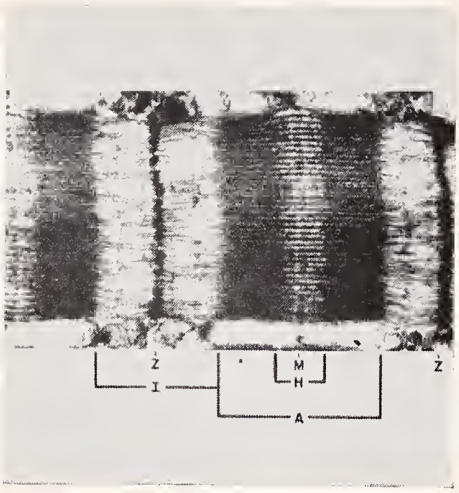

FIGURE 1

An electron micrograph of an isolated myofibril x50,000. Reproduced by permission: J. Biophys. Biochem. Cytol., 1957 (Huxley).

However, this model does not explain why the filaments slide only in one direction. Podolsky suggests that the thin actin filament may be a polyelectrolyte which is stretched out by the mutual repulsion of distributed electrically charged groups.[17] At the equilibrium length the entropic forces tending to shorten the filament are just balanced by the electrostatic force tending to extend it. During activation the negative charge on ATP neutralizes the charged groups, decreasing the electrostatic force and resulting in contraction. For greater detail on these models of contraction the reader should consult papers by Podolsky, Morales and Huxley.[17, 18, 19] Thus it has been definitely established that the contractile proteins are specifically arranged within the myofibril and that the two sets of myofilaments move relative to each other in shortening. The energy necessary to drive these processes is derived from high energy phosphate bonds produced from the breakdown of food stuffs.

The next perplexing problem that confronts us is the nature of the stimulus which triggers contraction. It has been known for a long time that certain electrolytes are essential for normal cardiac excitation and contraction. In the resting state a potential difference from 70 to 80 millivolts (exterior positive with respect to interior) has been recordeed from single myocardial cells by means of capillary glass ultramicroelectrodes.[20, 21] There is now good evidence that this resting membrane potential results from an asymmetric distribution of potassium (the intracellular potassium concentration is greater than the extracellular concentration) and a membrane selectively permeable to potassium ions.[22, 23] Upon excitation the membrane becomes much more permeable to sodium ions than to potassium or chloride and as a result of the opposite orientation of the sodium gradient (extracellular sodium concentration is greater than the intracellular sodium concentration) Na moves inward, a reversal of polarity occurs and the interior of the cell becomes positive with respect to the exterior. Subsequently, the membrane potential returns to that of the resting state by an inactivation of the inward sodium movement and in increased outward movement of potassium ions. During the interval between each action potential the normal extracellular sodium and potassium concentrations are reestablished by active transport mechanisms. There is no doubt that this decrease in resting membrane potential or depolarization is intimately associated with the activation of the contractile elements. The exact nature of this excitation-contraction coupling is not known. In the past, attempts to explain this phenomenon on the basis of diffusion of some essential substance such as calcium, potassium or sodium from the membrane into the vicinity of the myofibrils have been criticized because diffusion did not appear rapid enough. Recently, however, the electron microscope has defined in detail the fine tubular or vesicular network in the sarcoplasm called the sarcoplasmic reticulum.[24] This reticulum appears to be continuous with the surface membrane and the lumen of the tubules appears at times to be in direct connection with the extracellular space.[25] Porter and Palade have proposed that the reticulum may behave as typical cell membranes which would carry the action potential from the sarcolemma throughout the fiber.[26] Further evidence that the sarcoplasmic reticulum is associated with excitation was obtained by Huxley and Taylor.[27] They applied a microelectrode to different points on the sarcolemma of single frog muscle fibers under direct observation with an interference microscope. When the tip of the micropipette was over the I band and a current was passed, there followed a contraction of the adjacent half sarcomeres. However, no response was obtained when the stimulus was applied over the A band. They suggested that some structural component located in the I band was responsible for the inward spread of excitation possibly the Z line itself. However, similar experiments on lizard muscle indicated that the sensitive zones in this animal were not at the level of the Z band but near the I-A junction. It is of interest in this respect that studies with the electron microscope have revealed that a specialized structure of the sarcoplasmic reticulum (so-called triad) is closely associated with the Z line in frog muscle, but with the I-A junction in lizard muscle.[28] Thus, there is a close association between the sarcoplasmic reticulum and spots on the sarcomere sensitive to direct stimulation with a microelectrode. Fawcett has shown that this system of membrane limited tubules is particularily well developed in exceptionally fast-acting skeletal muscles.[29] In addition, the reticulum is rudimentary in the slow beating heart of the turtle, but is quite complex in a very rapidly beating heart of the bat. The reticulum of the human myocardium appears to be intermediate. Thus, although it has not been definitely proven, evidence is mounting in favor of the hypothesis that the reticulum is involved in excitation and contraction. It is well known, however, that membrane depolarization itself is not the final link in the process, for contraction can be brought about without depolarization of muscle membrane. Thus caffeine may induce a contracture without change in the resting membrane potential.[30] In addition the withdrawal of calcium ions from the bathing solution can cause a rapid loss of mechanical but not electrical activity of isolated heart muscle.[31] These findings point to another intervening process between membrane depolarization and the initiation of mechanical activity. Much evidence has now accumulated that implicates the calcium ion as the excitation-contraction link. Since the experiments of Ringer, it has been known that calcium was important in contraction of heart muscle.[32] Further investigations have shown that the strength of contractions depended upon the concentration of calcium ions in the bathing solution. In recent years, the inverse relationship of sodium and the contractile force has been shown to be the result of an antagonism between sodium and calcium ions at the cell surface.[33] Radioistope studies have shown that the tension increases resulting from changes in extracellular ion concentrations such as sodium and potassium were associated with an increased uptake of Ca_{45} in the tissues.[34] In addition, there are now considerable data which show that stimulation increases calcium inflow in cardiac, skeletal and vascular tissues.[35,36,37] It has been shown that the sarcoplasmic reticulum has an extraordinary strong calcium binding activity. In view of the close association of this vesicular structure with excitation and contraction, it has been postulated that this calcium is the key substance for the excitation-contraction coupling. Thus, it has been proposed that impulses may be transmitted from the plasma membrane along the sarcoplasmic reticulum resulting in a release of calcium from sites in the sarcoplasmic reticulum and/or other additional sites into the vicinity of the contractile apparatus resulting in contraction.

The next question that immediately follows is how does this increased concentration of ionized calcium in the vicinity of the contractile apparatus produce contraction? Two interesting possibilities exist. The first is that the calcium that is made available during excitation directly activates contraction with relaxation occurring from the subsequent removal of the calcium; and the second, that calcium inhibits a system which is responsible for relaxation and thus indirectly initiates contraction. Although a great deal of uncertainty still exists, evidence is accumulating that it is the latter process which may have physiological significance. The observations by Marsh and later Bendall were the first ones to suggest that muscle itself contains a relaxing system.[38] Marsh in 1951 observed that a fresh suspension of myofibrils in the presence of ATP and an unknown factor, present in a fresh muscle extract, was very difficult to sediment out on centrifugation due to a swelling of the fibrils. This process was accompanied by an inhibition of ATP splitting by the myofibrils. Bendall later showed that the muscle extract used by Marsh resulted in relaxation of loaded glycerinated fiber bundles that had previously been contracted under the influence of ATP.[39] In addition, he demonstrated that this relaxing factor (or factors) works only at a certain superoptimal ATP concentration, requires magnesium and is very strongly inhibited by calcium.[40] Much work has subsequently followed trying to involve the transphosphorylating systems in relaxation. However, Briggs and Portzehl clearly demonstrated that in well washed muscle fiber bundles transphosphorylating systems will not produce relaxation unless another factor, so-called relaxing factor, was added.[41] They also suggested that these systems caused relaxation of a fiber bundle by maintaining a significantly high concentration of ATP in the center of the fiber bundle, when relaxing factor was present. Briggs, Parker and Gergely showed that the Marsh-Bendall relaxing factor consisted of a granular component and a heat labile co-factor.[42] However, it was difficult to explain how a granular component could readily penetrate the muscle fibers and result in relaxation. Considerable insight into this problem occurred when Parker and Gergely in 1960 demonstrated that if muscle granules (presumably part of the sarcoplasmic reticulum) were incubated with ATP and a dialyzible co-factor, a soluble relaxing substance was obtained.[43] In addition, Fuchs and Briggs have recently been able to extract a soluble relaxing factor (s) directly from skeletal and heart muscle.[44] The exact nature of this relaxing factor (or factors) is still unknown, although attempts are being made to identify this substance (s).[45] It is apparent that the relaxing substances (s) in the presence of ATP and magnesium results in the inhibition of myofibrillar ATPase activity and inhibition of contraction (contraction and relaxation are associated with a high and low myofibrillar ATPase activity, respectively). Parker and Gergely have shown that the ATPase activity of the myofibrils is not affected when a Ca fraction which is readily exchangeable is removed.[46] Since myofibrillar ATPase activity depends on the presence of small amounts of Ca,[47] it must be a tightly bound Ca fraction which is necessary for the enzymes action. They postulate that relaxing factor (s) may act on the myofibrils by attaching itself to this firmly bound Ca fraction, preventing the breakdown of ATP and thus inhibiting contraction. This is in keeping with observations on the similarity between the effects of ethylenediaminetetraacetate (EDTA) and other Ca chelators and the relaxing factor system in producing inhibition of myofibrillar ATPase and producing relaxation in glycerinated muscle fibers previously contracted by ATP.[48,49,50] Since it is known that calcium is the only physiological ion that will cause contraction when injected into living muscle,[51] it is interesting to speculate on the following sequence of events in the normal process of contraction. The sarcoplasmic reticulum continuously produces a soluble relaxing factor (s) which diffuses into the vicinity of the contractile apparatus attaching itself to a firmly bound calcium fraction in the contractile proteins. In some manner the attachment renders this Ca unavailable for ATPase activity and relaxation is maintained. During excitation, calcium is released or made available from sites possibly in the sarcoplasmic reticulum with the resultant inhibition of relaxing factor (s). The tightly bound Ca now becomes available for ATPase activity and contraction takes place. When excitation ceases, this released calicum is rapidly bound to the reticulum and probably other sites and the cycle begins again.

Congestive Heart Failure

From the view point of energetics congestive heart failure can be looked upon as either the result of impairment of the generation or of the utilization of free energy of the energy-rich phosphate compounds. Any disturbance which results in a decrease in the production of energy which can be utilized for contraction may result in failure. Included in this category are failures resulting from anoxia, co-enzyme lack and hormonal imbalances.

Both acute and chronic anoxia may interfere with the production of energy-rich phosphate compounds, and lead to a progressive decline in work capacity of the heart. Examples of this type of failure include patients with severe anemia and chronic lung disease. The most important example of failure due to co-enzyme lack occurs in beri-beri heart disease which is the result of inadequate amounts of thiamine in the diet.[52] Thiamine is a part of a co-enzyme, cocarboxylase, which is concerned with the conversion of pyruvate to acetyl co-enzyme A.[53] A deficiency of thiamine leads to a depletion of cocarboxylase and the oxidation of carbohydrates can not proceed to completion, resulting in a decrease in the production of energy-rich phosphate compounds. Hormonal imbalance may also lead to defects in free energy release. For example, there is evidence to suggest that ATP and phosphocreatine are exhausted in patients with severe thyrotoxicosis.[54, 55, 56] This may be related to thyroxine's effect on oxidative phosphorylation.[57] Clinically, however, it is believed that thyrotoxicosis by itself does not induce frank congestive heart failure. Nevertheless congestive failure associated with disturbances in free energy release are relatively resistant to action of the cardiac glycosides.

Congestive heart failure may also result from a defect in free energy utilization, even in the presence of normal free energy release or production. This failure may result from chronic valvular or hypertensive heart disease despite a normal or increased oxygen consumption, substrate utilization and normal contents of phosphocreatine and ATP.[58] It is this type of failure that responds well to the cardiac glycosides. It is not clear whether the inability of the myofibril to utilize phosphate bond energy results from abnormal physiochemical properties of the contractile protein actomyosin, or to the loss of essential electrolytes or metabolites. There are reports which suggest that changes in the actomyosin itself may be important. Thus, Benson reports that dogs in chronic heart failure secondary to surgically produced valvular disease have a low concentration of actomyosin.[59] Furthermore, Ellenbogen reports that cardiac myosin isolated from dogs in chronic congestive heart failure has a molecular weight three times that of normal hearts and suggests that during the development of failure myosin molecules aggregate to form large molecular complexes.[60] However, it is difficult to tell whether these changes are the cause or the result of the severe failure in these experiments. In addition, Benson and coworkers report a reduced contractility in glycerol extracted fibers prepared from hearts in congestive heart failure.[61]

Other attempts have been made to explain this type of congestive heart failure on the basis of some alteration in the intracellular ionic environment which results in a diminished contractility. It has been clearly shown that there is an abnormal distribution of electrolytes in hearts of patients who have died in congestive heart failure who have had no glycoside therapy.[62] This consists of increase in cell sodium and a decrease in cell potassium. Whether these changes are the cause of or the result of failure is not known. However, it is interesting that the cardiac glycosides also cause a release of potassium and gain of sodium in the heart, suggesting that these electrolyte changes are not important in the genesis of the failure.[63] However, an interesting possibility exists, in that since calcium appears to play a fundamental role in normal contraction, an abnormal calcium metabolism may be involved in the genesis of failure. It is well known that the cardiac glycoside and calcium have similar effects on the heart in congestive failure. Furthermore, it can be shown experimentally that the presence of calcium is necessary in order to demonstrate the action of the cardiac glycosides. In this respect, Kapeller and Kutschera-Aichenbergen found a diminshed calcium content in hearts in congestive failure resulting from chronic valvular disease. The decreased calcium was most marked on the side bearing the greatest strain.[64] For greater details of this aspect, the reader is referred to a monograph by Holland and Klein.[65]

In summary, it seems reasonably clear that the congestive heart failure in which a metabolic defect is apparent such as anoxia or beri-beri heart disease results from a defect in free energy release and does not respond well to digitalis. In those heart failures which do respond to digitalis it appears that the defect lies in the inability to transform metabolic free energy into mechanical work. It is now possible to discuss this latter form of heart failure in terms of modern day concepts of muscle contraction. It will be obvious, of course, that the picture is still crude and that many loose ends will be left dangling. However, in order to get a better insight into the nature of congestive heart failure we must attempt to explain the abnormalities in terms of known morphological and physiological events.

Early investigations by Frank and Starling had shown that the contractile energy of the heart was a function of the inital myocardial fiber length. Initially as the fiber length was increased there was a proportionate increase in the contractile force. However, beyond a certain critical point further lengthening actually resulted in a diminished contractile energy.[66, 67] It was thus proposed that congestive heart failure resulted when the load on the heart resulted in stretching of the myocardium beyond a critical length. Although objections have been raised against this concept, the bulk of evidence at present favors this principle. It can be recalled that the modern day concept of cardiac contraction is considered to be the result of an interaction between two sets of overlapping myofilaments. The ATP bound to the thin actin filaments of the I band reacts with ATPase sights (cross bridges) of the thick myosin filaments in the A band. The calcium ion appears to exert the major control over the interaction either by strengthening or establishing the cross links betwen filaments or by inhibiting relaxing factor with the resultant increase in ATPase activity. By the alternate process of making and breaking cross links the thin actin filaments slide past the thicker myosin filaments. The slower the relative motion between the two filaments the greater is the time for interaction with a resultant increase in the capacity to perform work. It is possible that excessive stretch could so change the relationship of the myofilaments to each other that the number of interacting sights would be decreased resulting in a diminished contractile strength.[65] It is interesting in this respect that Huxley and Priesly have shown that the mere stretching of a muscle fiber from a sarcomere length of 3.5 microns to 3.6 microns results in the inhibition of contraction.[68] Thus it is possible that when enough of the myofibrils reach this critical degree of stretch, irreversible failure may result. Excessive stretch could also lead to other abnormalities in the structure of actomyosin or in its binding capacity. Thus, essential electrolytes such as Ca may be lost or become unavailable resulting in a decreased contractile energy.

Brief mention should be made of the possible role of cardiac hypertrophy in the genesis of heart failure. There is no doubt that hypertrophy is an important compensatory mechanism in the overworked heart. Some investigators have advanced the idea that anoxia of the myocardium resulting from hypertrophy plays a prominent role in the development of congestive heart failure.[69] The hypertrophied fibers supposedly do not permit adequate oxygen diffusion. However, there is also good evidence indicating that in the absence of coronary disease coronary flow in the hypertrophied heart is more than adequate to supply the oxygen requirements of even the thickest fibers.[70] The idea that muscle fibers can ‘outgrow their blood supply’ does not appear reasonable since an adequate blood supply must certainly be available in order for hypertrophy to take place. It is possible, however, that once hypertrophy has occurred embarrassment of the blood supply (coronary artery narrowing etc.) may result in anoxia in the center of hypertrophied fibers.

Digitalis

As we have already indicated, Withering in 1785 believed that the important effects of the foxglove were mediated through the kidneys. Since that time a mass of information has accumulated which leaves little doubt that the main therapeutic action of digitalis results through its action on the heart. There is such a great wealth of information available on this subject, in this short review we can only attempt to concentrate on the most recent information which is in accord with the modern day theories of contraction. It is now reasonably well established that the cardiac glycosides find their greatest effectiveness in those forms of heart failure which have no defect in the production of free energy but in which there is a defect in the conversion of this free energy to mechanical work. As suggested above, this latter type of failure may be related to excessive stretch of the myocardium and/or an abnormal calcium metabolism. It is well known, both clinically and experimentally, that the cardiac glycosides and calcium have similar effects on the heart. Calcium has been used at the bedside in order to determine the extent of digitalization of patients receiving the cardiac glycosides.[71] In addition, there is now considerable evidence showing that the cardiac glycosides effect the movement of calcium in both cardiac and skeletal muscle. Thus, several laboratories have reported that the contracture in cardiac muscle induced by the glycosides is associated with an increased amount of Ca^{45} in the tissue and an increased intracellular Ca concentration.[72,73,74,75] Shanes has also demonstrated an increase of calcium influx in skeletal muscle treated with ouabain.[76] However, the role of Ca in the positive inotropic action of ouabain is not entirely clear. Most recent work in our laboratory has demonstrated an increased net entry of Ca^{45} during the positive inotropic action of ouabain in isolated guinea pig atria (to be published). Since several laboratories have demonstrated a slight decrease in the intracellular Ca concentration in hearts during the positive inotropic action of the cardiac glycosides,[74,75] the isotope data suggests that there may be an increased exchange of Ca taking place. However, it has not yet been possible to demonstrate an effect of ouabain on Ca outflow. Further work is necessary in order to clarify this situation. Nevertheless, studies in this laboratory do suggest that ouabain probably affects that calcium fraction which is involved in excitation-contraction coupling, presumably located in or on the cell membrane and its extensions, that is, the sarcoplasmic reticulum.[77] Thus, it is possible that in congestive failure digitalis may increase the available ionized calcium in the vicinity of the contractile apparatus either by increasing its rate of inward movement across the membrane or by changing its binding on sites in the membrane or myoplasm. By making more calcium available per beat there may be a greater inhibition of relaxing factor with a higher ATPase activity and stronger contraction. This idea is given additional support from the experiment of Weidmann who demonstrated in turtle ventricle that a sudden increase in the extracellular calcium concentration during the initial stages of a twitch produced a more rapid rate of tension development and a greater peak tension than occurred at the lower calcium concentration.[78] In addition, calcium may function by strengthening existing cross links or establishing new cross links between overlapping excessively stretched filaments so that the contractile force approximates the force in the normal state. As the cardiac output increases, many complex changes in the body occur involving water, electrolytes, hormones, etc., and the heart returns to a state as close to normal as possible. This latter aspect depends upon the amount of irreparable damage that has taken place (perhaps related to polymerization of actomyosin) and how much of the excessive load or abnormal state has been relieved. There is no very good consistent evidence that the cardiac glycosides have a direct effect on the contractile proteins. Lee, however, has suggested from observations made on glycerol-extracted cardiac fibers that ouabain may directly inhibit the relaxing factor system in cardiac tissue.[79] However, his results were variable and recent work in our laboratory indicates that ouabain has no direct effect on relaxing factor or factors in either cardiac or skeletal muscle (unpublished observations). It is apparent that the problem is far from settled.

Even though it is currently held that the main mechanism of the diuresis induced by the cardiac glycosides results from its action on the heart, mention should be made of the fact that the glycosides also have a direct effect on the renal parenchyma. It had been suggested by Withering in 1785, and later by Phillips and Bradford in 1876, that digitalis had a direct effect on the kidneys.[80] Since further studies indicated that the greater part of the renal effects were secondary to the direct action of digitalis on the heart, little additional investigation was carried out. However, in 1951, Eichna and Farber observed that the marked and prompt electrolyte and water diuresis which occurred after digitalization in patients with congestive heart failure or non-cardiac edema could not be correlated with consistent changes in cardiac or renal hemodynamics. This lead Farber to suggest a possible direct effect of digitalis mediated through the adrenal steroids.[81] Subsequently, Hyman and associates demonstrated conclusively that digitoxin had a direct renal effect.[82] They injected digitoxin into the left renal artery of dogs and observed an increase sodium excretion and diuretic effect on the injected side only. The direct renal response produced by cardiac glycosides has also been demonstrated by several other laboratories.[83,84,85] The exact mechanism of this action is unknown although it has been suggested that the glycosides may antagonize the effects of aldosterone at the renal tubular level, similar to the spirolactones.[86,87] These interesting observations suggest the possibility that at least a small part of the clinical benefit of digitalis, particularly in edematous states associated with high levels of aldosterone, may be by way of its renal effects.

It is obvious that our knowledge of these problems is still meager. However, significant advances have and are being made in this field. At least, the avenues for further search have been opened.

REFERENCES

1. Withering, W.: An account of the foxglove and some of its medicinal uses: with practical remarks on dropsy and other diseases. London, Robinson, 1785. Reprinted in Medical Classics, 1937.

2. Reed, L. J. and DeBusk, B. G. Lipothiamide and its relation to a thiamine coenzyme required for oxidative decarboxylation of α-keto acids. J. Am. Chem. Soc., 74: 3457, 1952.

3. Krebs, H. A.: Some aspects of the energy transformation in living matter. Brit. M. Bull., 9: 97, 1953.

4. Krebs, H. A.: The intermediary stages in the biological oxidation of carbohydrate. Advances Enzymol., 3: 191, 1943.

5. Green, D. E., Goldberger, R. F.: Pathways of metabolism in heart muscle. Amer. J. Med., 30: 666, 1961.

6. Krebs, H. A., Ruffo, A., Johnson, M., Eggleston, L. V., and Hems, R.: Oxidative phosphorylation. Biochem. J., 54: 107, 1953.

7. Muir, A. R.: An electron microscope study of the embryology of the intercalated disc in the heart of the rabbit. J. Biophys. Biochem. Cytol., 3: 193, 1957.

8. Moore, D. H. and Ruska, H.: Electron microscope study of mammalian cardiac muscle cells. J. Biophys. Biochem. Cytol., 3: 261, 1957.

9. Perry, S. V.: The components of the myofibril and their relation to its structure and function. Symposia Soc. Exper. Biol., 9: 203, 1955.

10. Huxley, H. E.: The contractile structure of cardiac and skeletal muscle. Circ. (part 2), 24: 328, 1961.

11. Hanson, J. and Huxley, H. E.: Structural basis of the cross-striations in muscle. Nature, 172: 530, 1953.

12. Hanson, J. and Huxley, H. E.: Quantitative studies on the structure of cross-striated myofibrils. Biochim. et Biophys. acta, 29: 250, 1957.

13. Bailey, K.: Tropomyosin: a new asymmetric protein component of the muscle fibril. Biochem. J., 43: 271, 1948.

14. Amberson, W. R., White, J. I., Bensusan, H. B., Himmelfarb, S., and Blankenhorn, B. E.: Δ protein, a new fibrous protein of skeletal muscle: preparation. Am. J. Physiol., 188: 205, 1957.

15. Huxley, A. F. and Niedergerke, R.: Structural changes in muscle during contraction: interference microscopy of living muscle fibres. Nature, 173: 971, 1954.

16. Huxley, H. E. and Hanson, J.: Changes in the cross-striations of muscle during contraction and stretch and their structural interpretation. Nature, 173: 973, 1954.

17. Podolsky, R. J.: The chemical thermodynamics and molecular mechanism of muscular contraction. Ann. New York Acad. Sc., 72: 522, 1959.

18. Huxley, A. F.: Muscle structure and theories of contraction. Prog. in Biophysics and Biophys. Chem., 1: 255, 1957.

19. Morales, M. F.: Mechanisms of muscle contraction. Rev. Mod. Physics, 31: 426, 1959.

20. Weidmann, S.: Electrophysiology of the Heart Muscle Fiber. Bern, Huber, 1956 .

21. Hoffman, B. F. and Cranefield, P. F.: Electrophysiology of the Heart. McGraw-Hill, 1960.

22. Huxley, A. F. and Stampfli, R.: The effect of potassium and sodium on resting and action potentials of single myelinated nerve fibers. J. Physiol., 112: 496, 1951.

23. Brady, A. J. and Woodbury, J. W.: The sodium-potassium hypothesis as the basis of electrical activity in frog ventricle. J. Physiol., 154: 385, 1960.

24. Moore, D. H. and Ruska, H.: Electron microscope study of mammalian cardiac muscle cells. J. Biophys. Biochem. Cytol., 3: 261, 1957.

25. Simpson, F. G. and Oertelis, S. T.: Relationship of the sarcoplasmic reticulum to sarcolemma in sheep cardiac muscle. Nature, 189: 758, 1961.

26. Porter, K. R. and Palade, G. E.: Studies on the endoplasmic reticulum. III. Its form and distribution in striated muscle cells. J. Biophys. Biochem. Cytol., 3: 269, 1957.

27. Huxley, A. F. and Taylor, R. E.: Activation of a single sarcomere. J. Physiol., 130: 49P, 1955.

28. Fawcett, D. W.: The sarcoplasmic reticulum of skeletal and cardiac muscle. Circ. 24 (part 2) 336, 1961.

29. Fawcett, D. W. and Revel, J. P.: The sarcoplasmic reticulum of a fast-acting fish muscle. J. Biophys. and Biochem. Cytol., 10 (4, pt. 2, suppl.): 89, 1961.

30. Axelsson, J. and Thesleff, S.: Activation of the contractile mechanism in striated muscle. Acta Physiol. Scandinav., 44: 55, 1958.

31. Mines, G. R.: On functional analysis by the action of electrolytes. J. Physiol., 46: 188, 1913.

32. Ringer, S.: A further contribution regarding the influence of the different constituents of the blood on the contraction of the heart. J. Physiol., 4: 29, 1882.

33. Lüttgau, H. C. and Niedergerke, R.: The antagonism between calcium and sodium ions on frog's heart. J. Physiol., 143: 486, 1958.

34. Niedergerke, R. and Harris, E. J.: Calcium and the activation of contraction. Experientia, 15: 128, 1959.

35. Sekul, A. A. and Holland, W. C.: Cl^{36} and Ca^{45} exchange in atrial fibrillation. Am. J. Physiol., 197: 752, 1959.

36. Bianchi, C. P. and Shanes, A. M.: Calcium influx in skeletal muscle at rest, during activity and during potassium contracture. J. Gen. Physiol., 42: 803, 1959.

37. Briggs, A. H. and Melvin, S.: Ion movements in isolated rabbit aortic strips. Am. J. Physiol., 201: 365, 1961.

38. Marsh, B. B.: A factor modifying muscle fibre synaeresis. Nature, 167: 1065, 1951.

39. Bendall, J. R.: Effect of the "Marsh Factor" on the shortening of muscle fibre models in the presence of adenosine triphosphate. Nature, 170: 1058, 1952.

40. Bendall, J. R.: Further observations on a factor (the 'Marsh Factor') effecting relaxation of ATP-shortened muscle-fibre models, and the effect of Ca and Mg ions upon it. J. Physiol., 121: 232, 1953.

41. Briggs, F. N. and Portzehl, H.: The influence of relaxing factor on the pH dependence of the contraction of muscle models. Biochim. et Biophys. Acta, 24: 482, 1957.

42. Briggs, F. N., Kaldor, G., and Gergely, J.: Participation of a dialyzable co-factor in the relaxing factor system of muscle. Biochim. et Biophys. Acta, 34: 211, 1959.

43. Parker, C. J., Jr. and Gergely, J.: Soluble relaxing factor from muscle. J. Biol. Chem., 235: 3449, 1960.

44. Fuchs, F. and Briggs, F. N.: Direct isolation of a soluble relaxing system from muscle. Biochem. et. Biophys. Acta, 51: 423, 1961.

45. Ellis, H. A. and Faulkner, P.: Inhibition of myofibrillar ATPase and syneresis by 1, 3-diphosphoglyceric acid. Biochem. and Biophys. Res. Comm., 5: 255, 1961.

46. Parker, C. J., Jr. and Gergely, J.: The role of calcium in the adenosine triphosphatase activity of myofibrils and in the mechanism of the relaxing factor system of muscle. J. Biol. Chem., 236: 411, 1961.

47. Weber, A.: On the role of calcium in the activity of adenosine 5'-triphosphate hydrolysis by actomyosin. J. Biol. Chem., 234: 2764, 1959.

48. Perry, S. V. and Grey, T. C.: A study of the effects of substrate concentration and certain relaxing factors on the magnesium-activated myofibrillar adenosine triphosphatase. Biochem. J., 64: 184, 1956.

49. Watanabe, S.: Relaxing effects of EDTA on glycerol-treated muscle fibers. Arch. Biochem. et Biophys., 54: 559, 1955.

50. Ebashi, S.: Calcium binding and relaxation in the actomyosin system. J. Biochem., 48: 150, 1960.

51. Heilbrunn, L. V. and Wiercinski, F. J.: The action of various cations on muscle protoplasm. J. Cell. and Comp. Physiol., 29: 15, 1947.

52. Burwell, C. S. and Dexter, L.: Beriberi heart disease. Tr. A. Am. Physicians, 60: 59, 1947.

53. Ochoa, S. and Peters, R. A.: Vitamin B_1 and cocarboxylase in animal tissues. Biochem. J., 32: 1501, 1938.

54. Berg, H.: Über den Herzmuskelstoffwechsel bei Hyperthyreose und seine Beeinflussung durch Vitamin C. Arch. exper. Pathol. u Pharmakol., 185: 359, 1937.

55. Mattonet, C.: Chemischer Beitrag zur Frage der Herzmuskel schädigung durch Thyroxin. Ztschr. ges. exper. Med., 90: 237, 1933.

56. Schümann, H.: Experimentelle Befunde zur Frage gesteigerter Thyroxinempfindlichkeit des mechanisch vermehrt belasteten Herzmuskels. Ztschr. ges. exper. Med., 105: 577, 1939.

57. Lehninger, A. L.: Physiology of mitochondria; relationships between mitochondrial structure, oxidative phosphorylation, and action of thyroxine. Internat. Symposium on Enzymes. 1955. (publ. 1956).

58. Wollenberger, A.: The energy metabolism of the failing heart and the metabolic action of cardiac glycosides. J. Pharmacol. & Exper. Therap., 97: 311, 1949.

59. Benson, E. S., Hallaway, B. E., and Freier, E. F.: Extraction and quantitative characteristics of actomyosin in canine heart muscle. Circ. Res., 3: 215, 1955.

60. Ellenbogen, E., Iyengar, R., and Olson, R. E.: Properties of myosin from normal and failing dog hearts. Federation Proc., 18: 221, 1959.

61. Benson, E. S., Hallaway, B. E., and Turbak, C. E.: Contractile properties of glycerol-extracted muscle bundles from the chronically failing canine heart. Circ. Res., 6: 122, 1958.

62. Clarke, N. E. and Mosher, R. E.: The water and electrolyte content of the human heart in congestive heart failure with and without digitalization. Circulation, 5: 907, 1952.

63. Boyer, P. K. and Poindexter, C. A.: The influence of digitalis on the electrolyte and water balance of heart muscle. Am. Heart J., 20: 586, 1940.

64. Kapeller, R. and Kutschera-Aichenbergen, H.: Uber den Calcium-gehalt des Herzmuskels. Biochem. Ztschr., 193: 400, 1928.

65. Holland, W. C. and Klein, R. L.: The chemistry of heart failure. C. C. Thomas, Publisher, 1960.

66. Patterson, S. W. and Starling, E. H.: On the mechanical factors which determine the output of the ventricle. J. Physiol., 48: 357, 1914.

67. Patterson, S. W., Piper, H., and Starling, E. H.: The regulation of the heart beat. J. Physiol., 48: 465, 1914.

68. Huxley, A. F. and Peachey, L. D.: The maximum length for contraction in striated muscle. J. Physiol., 146: 55P, 1959.

69. Harrison, T. R.: Failure of the circulation. 2nd edit. Baltimore, Williams and Wilkins, 1939.

70. Dock, W.: Capacity of coronary bed cardiac hypertrophy. J. Exper. Med., 74: 177, 1941.

71. Gubner, R. S. and Kallman, H.: Treatment of digitalis toxicity by chelation of serum calcium. Am. J. Med. Sci., 234: 136, 1957.

72. Thomas, L. J., Jr.: Ouabain contracture of frog heart: Ca^{45} movements and effect of EDTA. Am. J. Physiol., 199: 146, 1960.

73. Holland, W. C. and Sekul, A. A.: Effect of ouabain on Ca^{45} and Cl^{36} exchange in isolated rabbit atria. Am. J. Physiol., 197: 757, 1959.

74. Lee, K. S., Yu, D. H., Lee, D. I., and Burstein, R.: Influence of potassium and calcium on the effect of ouabain on cat papillary muscle. J. Phar. Exp. Ther., 132: 139, 1961.

75. Klaus, W., Kuschinsky, G., and Lüllmann, H.: The influence of therapeutic and toxic concentrations of digitoxigenin on the K flux and ion concentrations in isolated guinea pig atria. First International Congress of Pharmacology, 1961. (article in print)

76. Shanes, A. M.: Ca influx in frog rectus abdominus muscle at rest and during potassium contracture. J. Cell. Comp. Physiol., 57: 193, 1961.

77. Briggs, A. H. and Holland, W. C.: Effects of temperature and ouabain on resting tension and Ca^{45} entry in rabbit atria. Am. J. Physiol. (accepted for publication).

78. Weidmann, S.: Effect of increasing the calcium concentration during a single heart beat. Experientia, 15: 128, 1959.

79. Lee, K. S.: Effects of ouabain in glycerol-extracted fibers from heart containing a relaxing factor. J. Phar. Exper. Ther., 132: 149, 1961.

80. Phillips, C. D. F. and Bradford, J. R.: On the action of certain drugs on the circulation and secretion of the kidney. J. Physiol., 8: 117, 1886.

81. Eichna, L. W., Farber, S. J., Berger, A. R., Earle, D. P., Rader, B., Pellegrino, E., Albert, R. E., Alexander, J. D., Taube, H., and Youngwirth, S.: The interrelationships of cardiovascular, renal and electrolyte effects of intravenous digoxin in congestive heart failure. J. Clin. Invest., 30: 1250, 1951.

82. Hyman, A. L., Jaques, W. E., Hyman, E. S.: Observation on the direct effect of digoxin on renal excretion of sodium and water. Am. Heart J., 52: 592, 1956 .

83. Koch, A.: Effect of ouabain on renal electrolyte transport in anesthetized dogs. Physiologist, 1: 42, 1958.

84. Cade, J. R., Shalhoub, R. J., and Canessa, M. L.: Effect of strophanthinin on transport mechanisms of the renal tubule. Fed. Proc., 19: 370, 1960.

85. Kupfer, S. and Kosovsky, J. D.: Alterations in renal hemodynamics and tubular function following the intrarenal arterial injection of digitalis glycosides. Clin. Res., 8: 186, 1960.

86. Kagawa, C. M., Cella, J. A., and Van Arman, C. G.: Action of new steroids in blocking effects of aldosterone and desoxycorticosterone on salt. Science, 126: 1015, 1957.

87. Liddle, G. W.: Sodium diuresis induced by steroidal antagonists of aldosterone. Science, 126: 1016, 1957.

Hashimoto's Disease And Carcinoma Of The Thyroid

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THERE has been a significant increase in the number of patients reported with struma lymphomatosa (Hashimoto's disease) in recent years.[11] Concomitantly there has been noted an appreciable incidence of malignancy of the thyroid gland in association with Hashimoto's disease.

The carcinoma occurring with Hashimoto's disease is most often papillary in type and of low grade malignancy. However two cases of undifferentiated carcinoma with a rapidly fatal course[7] and sarcomas of extreme malignancy arising from the lymphoid and supporting structures in Hashimoto's disease have been reported.[4]

Pathology

There is marked variation in the microscopic picture of struma lymphomatosa. The most distinctive feature, common to all advanced cases, is the inter-follicular infiltrate of plasma cells and lymphocytes, the plasma cells frequently outnumbering the lymphocytes.[14] The cellular infiltrate may be diffuse or focal. The thyroid epithelium shows degenerative changes in the form of oxyphilic alteration and destruction. There is a failure of colloid production, and disruption of acini is evident. Giant cells are often present and with progression of the disease there is increased fibrosis.[1] In some cases the marked lymphoid infiltration may be difficult to distinguish from lymphosarcoma. In children and young adults there is a fairly constant picture of hyperplastic epithelium.

Etiology

It is widely felt that struma lymphomatosa is the result of an auto-immune antibody response. Terplan, Witebsky, *et al*[13] have developed experimental evidence to suggest a relation between autoantibody titer and alterations in the thyroid. Dogs, rabbits, and guinea pigs were immunized with species-homologous thyroid extract. They developed histologic lesions of thyroiditis characterized by a reduction in size of colloid filled follicles and an infiltration by varied types of inflammatory cells. There was a correlation between the intensity of thyroiditis and level of circulating thyroid specific antibody titer which was, in general, qualitative rather than quantitative.

Roitt and Doniach[9] surveyed the incidence of thyroid anto-antibodies by a precipitin reaction and by the more sensitive complement fixation and tanned red cell agglutination tests. The antigen for the complement fixation test is found only within the acinar cells of thyrotoxic glands. It does not occur or appears only in minute amounts in the normal thyroid. The antigen to precipitins, on the other hand, occurs in the colloid of both normal and thyrotoxic glands.[6]

The sera of patients without thyroid disease were tested by the sensitive complement test and all gave negative results. The similarly sensitive tanned red cell test done on 148 other sera was positive in 10, of whom two proved to have thyroid disease on further investigation.

The pre-operative sera of 106 patients with Hashimoto's disease were subjected to the three tests. Circulating antibodies were found in all but two patients, and these two had advanced classic disease. Two-thirds had circulating antibody titers sufficient to give visible precipitins.

The antigen-antibody reaction is, however, not specific for Hashimoto's disease. Thyroid disease other than strauma lymphomatosa will produce

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positive serologic reactions. In primary adult myxedema approximately two-thirds of patients will give positive reactions to the tanned red cell agglutination or complement fixation tests and 19 per cent to the precipitin test.

Thyrotoxicosis predisposes to the development of auto-immunity (64 per cent), but the titers are low. Subacute thyroiditis gave positive reactions in 13 of 19 cases. In thyroid malignancy 71 per cent were negative to all tests, the remainder demonstrating only low to moderate titers.

Diagnosis

Hashimoto's disease occurs in the female sex with greater preponderance than any other thyroid disease.[8] Of 33 cases of Beare[1] all but one were women. Ninety of 97 cases (92.8 per cent) of Pollock and Sprong[8] were female.

The average age is in the fifth decade, however the disease occurs in all age groups, with a small but definite incidence in childhood.

The symptoms are the symptoms of goiter itself and are related to pressure, discomfort, and hypothyroidism. Hoarseness may also occur and is not necessarily a sign of malignancy.[1] The symptoms will fluctuate from time to time.

On examination the gland is enlarged bilaterally and clinically it may give the impression of nodularity despite diffuse involvement.

The only consistent pattern of laboratory data is found in the tests for agglutinins. The B.M.R. tends to be below normal, the radioactive iodine uptake is usually normal or slightly elevated, and the protein bound iodine tends to be normal or low. These tests reflect the depletive and destructive course of the disease; however there is wide variation from this pattern.[8]

Course Of The Disease

The process of thyroiditis in Hashimoto's disease is usually progressive with eventual thyroid hypofunction supervening. The gland can often be reduced in size by the prolonged administration of large doses of thyroid extract (e.g. two to three grains daily for six months). This diminution in size is presumably the result of suppression of thyrotropic hormone. The course of the disease, however, is usually unrelenting. On medical treatment, the patient will continue to have an elevated level of serum antibodies, despite reduction in size of the goiter. When the source of the antigen is gone, either by virtue of complete epithelial disruption or surgical removal, the antibodies will disappear.

Incidence Of Carcinoma

Reports of malignancy of the thyroid gland found in association with Hashimoto's disease are appearing with increasing frequency. Whether this indicates an increasing incidence of carcinoma in struma lymphomatosa or merely an improved documentation cannot be stated, however the association is statistically significant. Dailey, Lindsay, and Skaben[3] found 37 malignant neoplasms in 302 glands with Hashimoto's struma, an incidence of 12 per cent. Crile and Fisher[2] reported two cases of papillary carcinoma, one in lymphoid thyroiditis and one with both lymphoid infiltration and inflammatory changes suggestive of sub-acute thyroiditis. Pollock and Sprong[8] in a review of one thousand cases of non-toxic nodular goiter reported the incidence of unsuspected carcinoma in goiter due to Hashimoto's thyroiditis to be greater than in other non-toxic nodular goiters. Schlicke[10] reported nine cases of associated carcinoma in one hundred cases of struma lymphomatosa operated upon. Woolner[14] considered all cases of thyroiditis, totalling 605, at the Mayo Clinic and found 18 cases of carcinoma (3 per cent) and 12 cases of lymphosarcoma (2 per cent) of the thyroid.

Case Report

Mrs. M. S., a 33 year old white female, was seen on August 17th, 1960, one day postpartum. She gave a history of swelling of the right side of her neck since the age of 16 with hoarseness and rasping of her voice for the past three years. She complained of occasional nervousness but no other symptoms of hyperthyroidism. A sister had undergone thyroidectomy at the age of 19 for Hashimoto's disease.

Past history included rheumatic fever and a mastoidectomy in childhood. Her obstetrical history included four living children and three spontaneous abortions.

Examination revealed a well developed female with blood pressure of 150/100 and a pulse of 72. Positive findings included impaired convergence of the left eye and mild bilateral exophthalmus. There was slight drainage from the right external auditory canal suggestive of an otitis externa. Both cords moved well on indirect laryngoscopy. There was diffuse thyroid enlargement, somewhat more marked in the right lobe. The gland was smooth and moderately firm.

The patient was admitted to the hospital on October 26th. Her protein bound iodine was 7.3 and her B.M.R. +11. On October 28th subtotal thyroidectomy was performed and she was discharged from the hospital on her fourth postoperative day. The pathological diagnosis was struma lymphomatosum (Hashimoto's) with a single small focus of papillary and follicular carcinoma in the left lobe. It was felt that a thyroid carcinoma of this microscopic type might be functioning and that cervical metastases might pick up radio-active iodine. Accordingly scanning of the neck was performed after administration of 50 m.c. of iodine 131. The scintigram was negative for metastic foci. The twenty-four hour radioiodine uptake was 33 per cent.

Because of the propensity for thyroid carcinoma to be multifocal in origin total thyroidectomy was performed on November 17th. The superior laryngeal and the recurrent nerves as well as three of the four parathyroid glands were preserved. The fourth parathyroid was in an aberrant position on the anterior aspect of the thyroid remnant and was of necessity removed with the specimen. Exploration of the tracheoesophageal grooves and the carotid sheaths demonstrated no adenopathy. The pathology report was struma lymphomatosum. There was no evidence of residual carcinoma in the gland. A single small node at the lower pole of the left lobe was negative for cancer. Healing again was satisfactory and Mrs. S. was discharged from the hospital on her fourth postoperative day. Postoperatively the patient has functioned well metabolically with replacement therapy of three grains of thyroid daily.

Discussion

The decision for rational treatment of struma lymphomatosa must be based on knowledge of the natural history of the disease. There are those who feel that the proper treatment of Hashimoto's disease is medical. McConahey *et al*[5] treated 36 patients with Hashimoto's disease proven histologically either by needle biopsy or surgery by the administration of desiccated thyroid. There was disappearance of the goiter in 11, decrease in size in 22, and little or no change in three. They feel that medical treatment is the treatment of choice, however they conclude: "The physician who elects to treat lymphocytic thyroiditis medically must observe the behavior of the goiter from time to time to make sure that regression is occurring as expected."

Struma lymphomatosa is usually a relentlessly progressive disease, ultimately leading to the complete destruction of the gland and clinical hypothyroidism regardless of treatment. Moreover a clinically undetectable carcinoma or lymphosarcoma may be lurking in what appears to be a benign goiter. This circumstance is being reported with increasing frequency in Hashimoto's disease and is exemplified by our own case. The majority of these lesions are of low grade malignancy and offer an excellent prospect of cure. In Hashimoto's disease hypothyroidism will usually eventuate and well-executed surgical extirpation adds nothing to this functional disability, besides affording an excellent opportunity for the cure of early cancer.

Conclusion

The diagnosis of Hashimoto's disease may be suspected clinically, however it is generally not proven until surgical exploration has been performed. With an incidence of carcinoma in Hashimoto's disease in the range of five to ten per cent, it would seem advisable that the diffusely enlarged thyroid suspicious of struma lymphomatosa be considered for subtotal surgical extorpation.

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REFERENCES

1. Beare, R. L. B.: Lymphadenoid goiter (Hashimoto's Disease). Brit. M. J., 1: 480-486, Mar. 1, 1958.

2. Crile, George, Jr. and Fischer, E. R.: Simultaneous occurrence of thyroiditis and papillary carcinoma. Cancer, 6: 57, 1953.

3. Dailey, M. E., Lindsay, S., and Skaben, R.: Relation of thyroid neoplasms to Hashimoto's Disease of the thyroid gland. A. M. A. Arch. Surgery, 70: 291-297, (Feb.) 1955.

4. Lindsay, S. and Dailey, M. E.: Malignant lymphoma of the thyroid gland and its relation to Hashimoto's Disease: a clinical and pathologic study of eight patients. J. Clin. Endocrinol., 15: 1332, 1955.

5. McConahey, W. M., Woolner, L. B., Black, B. M., and Keating, F. R.: Effect of desiccated thyroid in lymphocytic (Hashimoto's) thyroiditis. J. Clin. Endocrinol., 19: 45-52 (Jan.) 1959.

6. Owen, Chas. A., Jr.: J. Clin. Endocrinol., 18: 1015-1023 (Sept.) 1958.

7. Piercy, J. E.: Discussion on carcinoma of the thyroid. Proc. Roy. Soc. Med., 49: 174, 1956.

8. Pollock, W. F. and Sprong, O. H., Jr.: The rationale of thyroidectomy for Hashimoto's thyroiditis, a premalignant lesion. West. J. Surg., 66: 17, 1958.

9. Roitt, I. M. and Doniach, D.: Lancet, 2: 1027-1033, Nov. 15, 1958.

10. Schlicke, C. P.: In Discussion of Paper by Polloch and Sprong. See above reference No. 8.

11. Shands, W. C.: Carcinoma of the thyroid in association with struma lymphomatosa (Hashimoto's Disease). Ann. of Surgery, 151: 675, 1960.

12. Statland, H., Wasserman, W. M., and Vicery, A. L. Struma lymphomatosa (Hashimoto's struma). Review of 51 cases with discussion and endocrinologic aspects.

13. Terplan, Kornel L., Witebsky, E., Rose, N. R., Paine, J. R., and Egan, R. W.: Experimental thyroiditis in rabbits, guinea pigs and dogs, following immunization with thyroid extracts of their own and of heterologous species. Am. J. Path., 36: 213-239, (Feb. 1960).

14. Woolner, L. B., McConahey, W. M., and Beahrs, O. H.: J. Clin. Endocrinol. and Metabolism, 19: 53, 1959.

15. Yeager, G. H., Workman, J. G., Holbrook, W. A., and Patten, D. H.: Thyroiditis: a review and presentation of 40 pathologically proven cases of chronic thyroiditis. South. M. J., 50: 1005-1012, (Aug.) 1957.

The Salmonella

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THE Weekly Health Bulletin of the Connecticut State Department of Health dated February 1, 1954 begins, "Within the past five months in three different parts of Connecticut, eighteen mothers and infants in a hospital, 130 members of a lake club, and one hundred employees at an industrial plant party were victimized by salmonellosis." It goes on to describe the natural behavior of the infection and to recommend preventive measures.[1] The Weekly Health Bulletin dated March 14, 1960 reports nothing new in regards to prevention or cure.[2] The salmonellae meanwhile have shown an increasing incidence (Figure 1). This problem was brought home to the author in the form of an epidemic which occurred at the State Veterans Home and Hospital, Rocky Hill, Connecticut during the months of January to July 1959.

Report Of The Epidemic

This outbreak consisted of 78 proven cases of S. typhimurium infection comprising 8.6 per cent of the institutional population. It is evident that all cases were not diagnosed since only food handlers and symptomatic patients and employees had stool cultures. Of 78 with stools positive for S. typhimurium 26 were employees, 1 a staff physician's child and the remaining 51 were residents of the home or hospital patients. Almost all the last group were symptomatic. The positive stools came from every ward, no single area seemingly a primary focus although there was a preponderance of surgical patients which will be discussed later.

Of 26 employees with positive stools 15 had definite symptoms. This group included 5 nurses and orderlies—all ill, 15 kitchen helpers—7 symptomatic, and 6 diarymen—3 without symptoms. A preliminary investigation by the state epidemiologist and sanitary engineer disclosed minor lapses in recommended food handling practices. Food prepared in a central kitchen was transported in heated carts through a tunnel, up an elevator to the several dining rooms and wards. The presence of contaminated linen carts in the same tunnel and elevator was criticized. In the dining rooms the storage of filled glasses of milk, and other dishes in vertical tiers, cracked meat cutting boards, and unclean wall can openers were noted. Toilet facilities for food service personnel were somewhat distant from the dining room and were shared with other personnel and patients making supervision of handwashing difficult and affording easy cross-contamination. Suggestions to improve these practices were carried out promptly and the number of new cases fell off sharply (Figure 2).

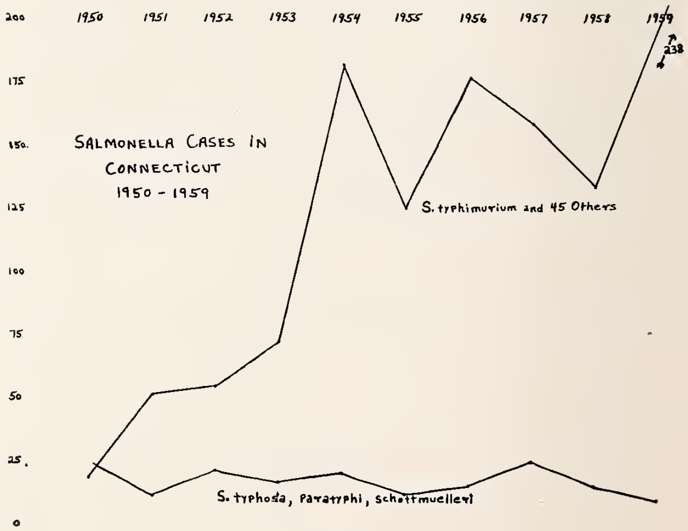

FIGURE I

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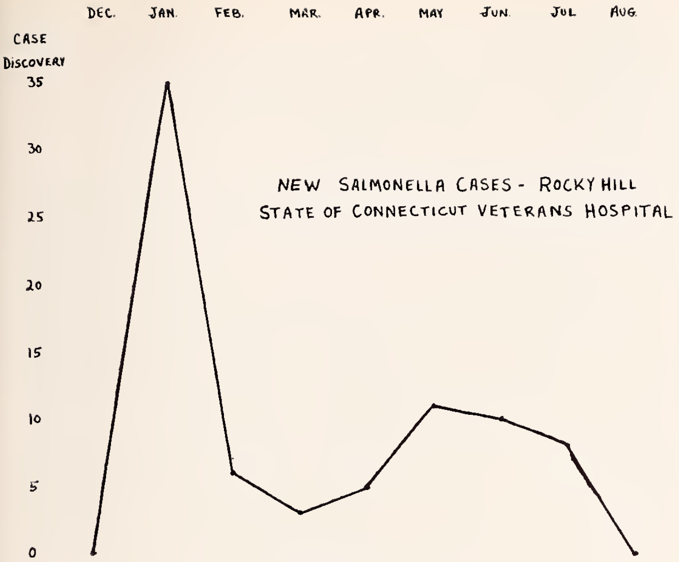

Figure II

Two dairymen had a recurrence of positive stools in April and May signalling an upsurge of new cases after the epidemic had apparently almost subsided in March. One of these men, employed only three months before the outbreak, also had a positive urine culture and gave a history of chronic intermittent diarrhea since 1943. However his health records here and in other institutions listed no previous salmonella infection. A staff physician's son, aged eight, developed gastroenteritis and S. typhimurium was cultured from his stool. He had not eaten institutional food nor come into contact with any known infected person but he did drink milk from the institution's dairy. This was taken as further evidence pointing to the dairy as the probable origin of the infection from whence it spread to kitchens, hospital and barracks. In retrospect the milk cultures were suspect, frequently showing high B. coli colony counts, but this was not appreciated because those taken from the dairy itself were only occasionally positive in the tube cultures and always negative on direct plate culture, whereas the main dining room and diet kitchen milk cultures were frequently positive on the direct plates. None of the milk cultures was positive for salmonella. Another interesting facet of the dairy operation was the peculiar nocturnal milking hour (midnight and two A.M.) which made close supervision of handwashing and other sanitary precautions of the milkers unlikely.

The statistics of our epidemic are similar to those reported for large collections in the medical literature (Table I).

Stool culture proved to be the most valuable laboratory test confirming the clinical impression on the average one week after onset of symptoms and serving as the chief means of discovering asymptomatic cases and recurrences. Cultures of milk, ice cream, flour, eggs and brewer's yeast used in the hospital were all negative for salmonella.

Table I

Clinical Manifestations of Salmonellosis—Rocky Hill Compared with Two Large Collections in the Medical Literature[3, 4]

	ROCKY HILL	MASSACHUSETTS	NEW YORK STATE
Total Cases	78	2300	7779
Gastroenteritis	55 (70%)	1605 (69.8%)	5312 (68%)
Septic Syndrome	1 (1.3%)	144 (6.3%)	686 (8.8%)
Focal Lesions	1 (1.3%)	47 (2%)	572 (7.4%)
Asymptomatic	22 (28%)	504 (21.9%)	1209 (15.5%)
Deaths	1 (1.3%)	37 (1.4%)	318 (4%)
Duration Symptoms	4 days	....	2 days
Duration Positive Stool	4 weeks	....	....

Three patients expired while still showing positive stools. One of these had far advanced metastatic carcinoma of colon, another was diabetic with chronic hypoplastic anemia. The third had S. typhimurium cultured from blood and pursued a septic course ending in coma. At autopsy stools and a suppurating gall bladder still cultured salmonella but blood and several embolic infarcts of brain were sterile.

Nineteen of our seventy-eight cases were treated with chloromycetin, with other antibiotics added in two cases. They showed no shortening of the symptomatic period or duration of positive stools, but in a few with high fevers the temperature rapidly returned to normal after therapy. As mentioned above three fatalities, all getting antibiotics, still had positive stool cultures at the time of death. Two others relapsed with positive stools and one had a positive urine culture following therapy. The fifty-nine patients who received only supportive care had no mortality, no increased morbidity, no prolonged period of carrying positive stools.

Certain other conditions present in our patients were considered from the standpoint of possibly predisposing towards salmonellosis because of their interference with normal bacterial flora, local tissue

Table II

ASSOCIATED CONDITIONS	SALMONELLA PATIENTS	HOSPITAL POPULATION
Diabetes Mellitus	6%	7%
Antibiotic Therapy	9%	7%
Gastrointestinal Lesions	12%	3%
Gastrointestinal Surgery	8%	2%
Steroid Therapy	8%	2%
Malignant Neoplasm	6%	8%
Cirrhosis of Liver	13%	5%
Total	62%	34%

defenses or systemic inflammatory reaction.[5] These and discussed briefly below.

Animal experiments have demonstrated how the amount of fermentable carbohydrate in diet may shift the bacterial flora of the gut from mainly proteolytic to mainly saccharolytic species. Thus feeding large amounts of fermentable sugar to rats leads to increased numbers of such organisms as Clostridium perfringens. Other experiments have shown that the amounts of such substances as dried milk, butter fat and Vitamin A in the diet of white mice have very significant effects upon their resistance to different strains of salmonella.[6] To extrapolate from such observations to our series of patients in the absence of any controlled studies of bacterial flora in humans with various nutritional and metabolic disorders is unwarranted. However, the general clinical experience that diabetics are more susceptible to bacterial infections, raised the question whether that disease could be pre-disposing to salmonellosis. Five of our seventy-eight patients were diabetic, not a significantly high incidence compared with the institution's population in general—7 per cent diabetic. Neither did the widely publicized alteration of normal bacterial flora by antibiotics manifest itself dramatically. Seven of our cases (9 per cent) had been treated with antibiotics for other conditions just prior to the onset of their symptoms of salmonellosis, while 7 per cent of the hospital's patients are ordinarily on antibiotic therapy.

Disturbance of local tissue defenses by surgical trauma or lesions of the gastrointestinal tract appeared to be more important. Nine patients (12 per cent) with organic lesions of bowel showed positive stool cultures, six of them within two days to one week after surgery. This number appears more significant when it is understood that during the same period only 3 per cent of the hospital patients had similar lesions and only 2 per cent were treated surgically.

In regard to impaired systemic inflammatory reaction, five of our patients had been treated with steroids for chronic asthma, emphysema or arthritis and one for periarteritis nodosa—8 per cent. Another five were suffering with malignant neoplasms — 6 per cent. One had chronic hypoplastic bone marrow and anemia and leukopenia. Ten had Laennec's cirrhosis of liver—13 per cent. Thus 22 or 27 per cent of our patients may have had impaired systemic defense reactions compared with 15 per cent of the hospital population which might be put into a similar category. A summary of the incidence of these associated conditions (Table II) shows them present in 62 per cent of our salmonella patients compared with an incidence of 34 per cent of the general hospital population. One final associated condition is worth mentioning: two of the three asymptomatic dairymen with recurrent positive stools were diagnosed respectively as a mental defective and a chronic schizophrenic.

Review Of The Problem

It is a paradox that in recent years typhoid fever has been approaching elimination while other salmonella infections have shown a marked increase (Figure 1). This rise cannot be explained as more efficient case finding by new diagnostic tools and it far outstrips the population growth. It must be accepted as a truly increased incidence.[7] Why have the control measures so effective for S. typhosa failed to control the other members of the genus? A study of certain differences in the host-parasite relationship may offer some clues.

Some salmonellae live in and cause infection almost entirely in humans. These are S. typhosa, the typhoid bacillus; S. paratyphi A, S. schottmuelleri and S. hirschfeldi, the etiologic agents of paratyphoid fever. These species are reported infrequently in Connecticut.

When either typhoid fever or these "true paratyphoid fevers" occur it is practically always due to human-to-human transmission. In these cases a search for the source of infection shows it has been spread from a person who is ill with the disease or who has had the disease in the past and has become a carrier. In these human kinds of salmonellosis about 2 per cent—4 per cent of those who have the disease may become permanent carriers. They recover from the disease but continue to grow the organism in their bodies and excrete them in bowel discharges. These people, if not particularly careful in their personal cleanliness, may spread typhoid and paratyphoid fever by contamination of food, water or milk with feces. Susceptible people eating or drinking the contaminated food or fluid will then develop the disease.

All of the other hundreds of kinds of salmonellae infect animals and birds (including domestic poultry) as well as humans. Most of them, in fact, are far more common in animals and birds than in humans. A person infected with these salmonellae may have gotten the disease from other humans with transmission in the same way as with the strictly human kinds of salmonellae. However, the transmission of these animal parasites is more often directly from the animal or bird. Food, milk or water contaminated with the excreta of infected animals (often by rats or mice) will cause the disease in humans.

Cooking will quickly kill the bacteria but infection may occur from careless handling of infected meat. For instance a cook cutting up an infected turkey will contaminate his hands and the cutting board on which he is working. If he then slices luncheon meats, which are to be eaten without cooking, on the same board without washing his hands and the cutting board, he may contaminate the luncheon meats which then may cause infection.

Permanent human carriers of the animal kinds of salmonellae rarely develop. Temporary carriers with the carrier state lasting up to a year or two do occur. Antibiotics have no curative effect upon the carrier state which sometimes temporarily follows the acute illness but most of these carriers clear up in time with no specific treatment.[8]

The severity of the illness may very considerably with the type of salmonella. S. choleraesuis, like S. typhosa, tends to be more severe (5 per cent—20 per cent mortality) while S. typhimurium is milder (1 per cent—5 per cent mortality). As might be expected higher mortality is found among patients near both ends of the human life span.[9]

Vaccines are available for S. typhosa, paratyphi, and schottmuelleri but it would be impractical to vaccinate for possible infection with the remaining 600 types of salmonellae even if potent vaccines were developed. However, vaccines for S. typhimurium and choleraesuis might be useful in certain situations.

Perhaps the most important difference between the human and animal salmonellae is the fact that the latter may become widely disseminated by commercial food processing. In such vehicles as dried milk, yeast,[10] and powdered eggs they do not require live carriers and as such products come from large pools it is difficult to trace their origin. It is perhaps significant that the increased incidence of salmonellosis has paralleled the postwar growth in use of such products, especially in the United States and Great Britain.

The previously mentioned aspects of salmonella infections—mild symptoms, temporary carrier state unaffected by antibiotic therapy, impracticality of vaccines—all made conventional case finding and control methods ineffective when applied to the human host only. Animal infections, conversely, may be more amenable to detection and control by agglutination tests for salmonella antibodies and destruction of diseased animals and their products i.e. infected fowl and their eggs.[11] Finally, adequate cooking or pasteurization of all commercial and institutional food stuffs and careful inspection at packaging sites would prevent dissemination of any infected material. It is in these applications to the animal host that public health legislation is most needed and could be expected to accomplish most towards eliminating the salmonella as an emerging public health problem.

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Summary

1. A recent hospital epidemic (78 cases) of S. typhimurium is reported.
2. The incidence of salmonellosis is increasing despite detection and control methods seemingly effective against typhoid fever.
3. Animal hosts are the source of the increased incidence of salmonellosis, mainly through dissemination of infected food products.
4. Control of salmonellosis can be accomplished only by additional public health measures directed at the animal hosts and animal food products.

REFERENCES

1. Weekly Health Bulletin, Conn. State Department of Health. Vol. 36, Feb. 1, 1954.

2. Weekly Health Bulletin, Conn. State Department of Health. Vol. 42, Mar. 4, 1960.

3. MacCready, R. A., Reardon, J. P., and Saphra, I.: Salmonellosis in Massachusetts: A sixteen-year experience. N. E. Jour. Med., 256: 1121, June 13, 1957.

4. Saphra, I. and Winter, J. W.: Clinical manifestations of Salmonellosis in man: an evaluation of 7,779 human infections identified at the New York Salmonella Center. N. E. Jour. Med., 256: 1128, June 13, 1957.

5. Black, P. H., Kunz, L. J., and Swartz, M. N.: Salmonellosis—a review of some unusual aspects. N. E. Jour. Med., 262: April 21, 28; May 5, 1960.

6. Wilson, G. S. and Miles, A. A.: Topley and Wilson's Principles of Bacteriology and Immunity, Chap. 54, p. 1366. 4th ed. Williams and Wilkins, Baltimore, 1955.

7. Flippin, H. F. and Eisenberg, G. M.: Current problems in Salmonellosis. Am. J. Med. Sci., 239: 278, Mar. 1960.

8. Szanton, V. L.: Epidemic Salmonellosis. Pediatrics, 20: part 1, Nov. 1957.

9. Saphra, I.: Fatalities in Salmonella infections. Am. J. Med. Sci., 220, 74, 1950.

10. Kunz, L. J. and Ouchterlony, O. T. G.: Salmonellosis originating in a hospital: a newly recognized source of infection. N. E. Jour. Med., 253: 761, Nov. 3, 1955.

11. Philbrook, F. R., MacCready, R. A., et al.: Salmonellosis spread by a dietary supplement of avian source. N. E. Jour. Med., 263: 713, Oct. 13, 1960.

Clinical And Experimental Pharmacology Of Sympathetic Blocking Agents

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In the past several years drugs have become available which act selectively to paralyze the sympathetic nervous system (Fig. I). This unique property has prompted the evaluation and the subsequent application of some of these compounds in the treatment of human hypertension. They have been most beneficial in the treatment of moderate to severe forms of this disease. The two compounds which have been most extensively studied in the human are bretylium tosylate and guanethidine sulfate. Bretylium[1] is a descendant of xylocholine bromide (TM_{10})[2] which was the first compound reported to produce true suppression of peripheral sympathetic nervous activity with some degree of specificity.[3,4] The methylated analogue of TM_{10} known as βTM_{10} has also been reported to have sympathetic suppressant activity.[5] Guanethidine[6,7] was developed independently and had as its forerunner the compound hexahydro-l-azepineproprionamidoxime HCl (Su-4029).[8,9,10] The interesting story of the development of TM_{10} has been recounted by Bain.[11] A summary of the research leading to guanethidine has also been presented.[12] Aviado[13] has recently reviewed this new class of compounds; the literature pertaining to guanethidine has also been reviewed.[14]

General Pharmacology[1,3,4,5,8,15,16,17,18,19]

Drugs of this class suppress the responses which are normally evoked in effector organs during sympathetic nervous activity. Concomitantly, they leave the responses of effector organs to parasympathetic nervous activity relatively undisturbed. During drug action the effectors are generally fully responsive or hyperresponsive to injections of the sympathetic mediator, norepinephrine. Furthermore, the conduction of impulses along sympathetic pre- and post-ganglionic neurons and across synapses is only very transiently interrupted; for the major part of the duration of action of the drugs it is normal. Such data lead to the conclusion that these agents must block sympathetic activity at a site which is very distal in the post-ganglionic neurons—most likely at the nerve terminals. Furthermore, the results clearly distinguish this group of drugs from 1) ganglionic blocking agents which act indiscriminately on efferent sympathetic and parasympathetic synapses and 2) adrenergic blocking agents which act specifically to suppress the responsiveness of sympathetic effectors but accomplish this by interfering with the interaction between the mediator substance and the effector and not by interfering with events in the sympathetic post-ganglionic nerve endings.

Effects In Hypertensive Patients

Bretylium and guanethidine have been reported to be effective in reducing elevated arterial pressure in short term studies. The initial clinical reports concerning bretylium were those of Boura et al.,[18] Smirk and Hodge[20] and Dollery et al.[21] The first reports concerning guanethidine were those of Page and Dustan,[9] Fröhlich and Fries,[22] Richardson and Wyso[23] and Leishman et al.[24] Both compounds lowered the diastolic and systolic pressures of patients in the supine and standing positions but were considerably more effective in the latter position. If overdosages of these drugs were given severe postural hypotension often resulted. The antihypertensive effect following an effective oral dose of bretylium could be detected within 1 to 3 hours and often persisted for as long as 9 hours.[18] The full antihypertensive effect following oral administration of effective doses of guanethidine required 4 to 72 hours to develop; the effect once attained was very prolonged and lasted for 2 to 3 days after which time gradual recovery took place.[9,22,23,24]

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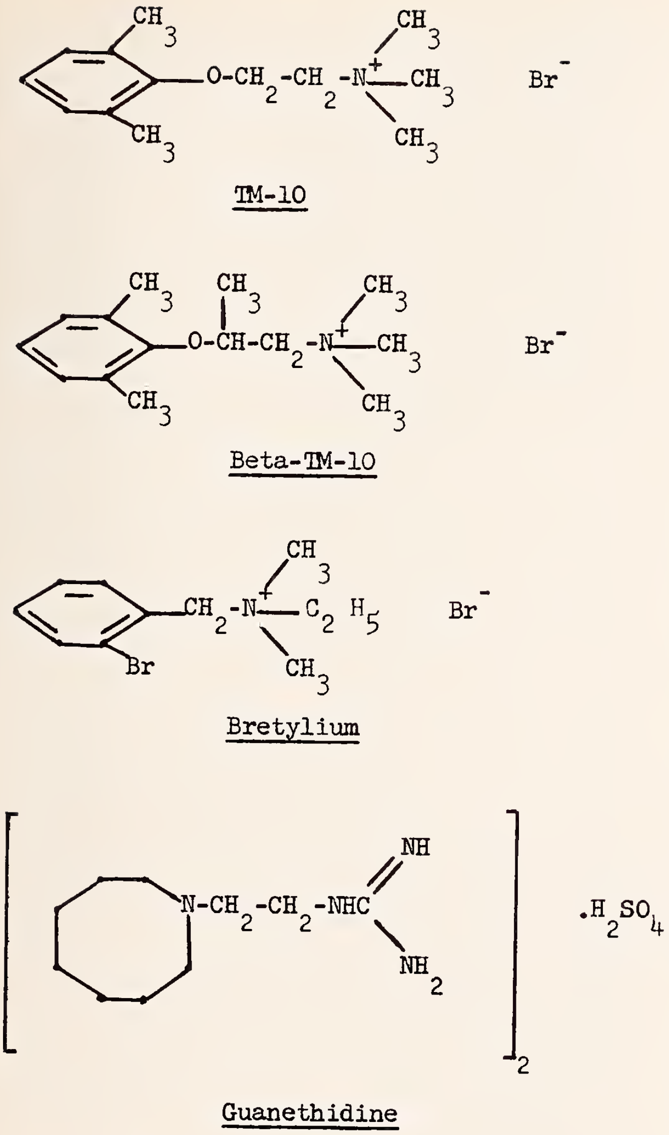

Figure I
Structural formulas of sympathetic blocking agents.

Page et al.,[25] Leishman et al.[26] and Dollery et al.[27] have also reported guanethidine to be effective in the long term management of hypertension. These workers, as well as others, have not recommended bretylium for this purpose because it is often erratically absorbed and because tolerance to the drug frequently develops.[28, 29, 30, 31]

Bretylium and guanethidine have both been reported to produce the following side effects in some patients:[9, 20, 21, 27, 28, 29] 1) diarrhea, which could be easily controlled with anticholinergics; 2) muscular aching and weakness; 3) syncope during muscular exercise; 4) failure of ejaculation without loss of potency in males. Bretylium also produces bilateral parotid pain which was sufficiently severe in some cases as to require discontinuation of therapy. Guanethidine produces bradycardia. Water retention has also been reported to occur with guanethidine; this was overcome without difficulty with thiazide diuretics. These side effects with the exception of the parotid pain have been attributed in large part to overdosage and have not been considered to be insurmountable problems in the use of these drugs.

Hemodynamic And Renal Effects

The hypotension elicited by βTM_{10} in anesthetized dogs is the result of reduction in cardiac output; peripheral resistance is not markedly affected.[32] Bretylium has been reported to increase[33] and to decrease[34, 35] cardiac output in resting supine humans; peripheral resistance was not markedly affected.[33, 34, 35] During the hypotension evoked by exercise in supine humans treated with bretylium the cardiac output response to work was normal but systemic resistance fell abruptly.[33] On tilting patients treated with bretylium a fall in cardiac output occurred, often to a greater degree than in untreated patients and usually without compensatory vasoconstriction.[34] Bretylium[35, 36] and guanethidine[37, 38] suppressed reflex pressor responses in humans such as the overshoot produced by the Valsalva maneuver and the cold pressor test. Sympathetically-mediated circulatory reflexes in animals are also dampened by bretylium[19] as well as by βTM_{10}[5] and guanethidine.[7, 9, 39]

In hypertensive, supine man, guanethidine may reduce[40] or not effect[33] cardiac output; it has been reported that in tilted or standing hypertensive patients cardiac output is reduced and peripheral resistance unchanged.[40] A second group of investigators recorded that during guanethidine treatment cardiac output is virtually unchanged and resistance is decreased when patients are tilted.[41] In normotensive, unanesthetized, supine dogs guanethidine reduced the cardiac output and increased the total peripheral resistance at 24 hours after its administration.[7]

In acute experiments in anesthetized dogs and in heart-lung preparations relatively large intravenous doses of bretylium[42, 43] and guanethidine[7, 9, 39] elicited transient depressor responses followed by transient pressor responses; these early effects were accompanied by cardiac stimulation.[9, 42, 44, 45] During the cardiac stimulation due to guanethidine the peripheral resistance decreased[46, 47] but returned to control values.[46] The sympathomimetic actions elicited by these agents are very transient and are supplanted by prolonged periods of generalized reduction in sympathetic tone.

Bretylium produced a transient fall in renal clearance values in humans but these subsequently rose to levels greater than the control values although the hypotensive effect persisted.[34] Guanethidine treatment resulted in a variable reduction in glomerular filtration rate and renal plasma flow especially in those patients where hypotensive action was very great.[25, 40, 48] Progressive azotemia or oliguria were not observed in patients whose renal function had not been deranged previous to guanethidine administration.[25, 40, 48]

Mechanism Of Sympathetic Paralysis

In the finer mechanisms of their actions in nerves the sympathetic blocking drugs differ and can be classed in two categories: Those drugs which deplete sympatheticially innervated structures of their catecholamine content and those which do not. The catecholamine content of tissues presumably represents the store of transmitter substance which is released by sympathetic nervous activity. TM_{10}[11] and bretylium[2] do not deplete tissues to any significant extent in acute experiments. Despite this lack of effect on catecholamine stores the sympathetic blocking activities of these drugs are very strong. Prolonged treatment with bretylium results in a gradual depletion of the catecholamine content of the spleen, heart and sympathetic ganglia of cats.[2] This loss of catecholamines is most likely secondary to the "denervation" produced by the drug since it is well known that surgical denervation will gradually reduce the concentration of catecholamines in organs[49] TM_{10} and bretylium apparently produce blockade by preventing the release of mediator at post-ganglionic terminals and not by dispersing the mediator.

Guanethidine reduces the catecholamine content of sympathetically innervated structures within a few hours following administration and keeps the levels depressed for prolonged periods in cats, rabbits, and dogs.[50, 51, 52] Since the catecholamine stores most likely represent the supply of mediator it is logical to assume that the sympathetic blocking action of guanethidine is due to depletion of the transmitter. Reserpine is also known to reduce the catecholamine content of tissues,[5, 3, 54] and in its peripheral autonomic blocking actions reserpine closely resembles the sympathetic blocking agents.[55, 56, 57, 58, 59, 60] Since much data has been collected which concerns the peripheral actions of reserpine and which has direct relevance to the understanding of the sympathetic blocking drugs we shall consider these data in the next sections.

Physiological And Pharmacological Implications Of Results Obtained With Sympathetic Blocking Agents

Nature of the Sympathetic Neuroeffector Junction. In the currently accepted schema concerning the events in sympathetic post-ganglionic nerves, the action potential is considered to trigger the release of norepinephrine from the nerve terminals; the subsequent interaction of the released norepinephrine with the effector organ leads to the response. Recent work with sympathetic blocking agents and reserpine has caused some investigators to propose a modification of this theory. Pretreatment of animals with guanethidine[39] and reserpine[57, 61] changes the constrictor response evoked in the hind limb by stimulation of the sympathetic chain to a dilator response. The dilator effect is blocked by atropine. The evocation of "parasympathetic" responses as a result of sympathetic nerve stimulation in animals treated with reserpine has been observed in other *in vivo* and *in vitro* systems.[62, 63, 64] Infusion or addition of norepinephrine or certain of its metabolic precursors, into these reserpine-treated preparations restores the original sympathetic responsiveness for a short period.[57, 62, 64] Burn and Rand suggest that the "parasympathetic" responses observed as a result of sympathetic nerve stimulation in reserpine-treated preparations indicate that the primary transmitter substance released by the sympathetic nerve endings is acetylcholine. The acetylcholine which is released by sympathetic nerve endings then acts to release norepinephrine from stores in the vicinity of the nerve endings. In animals treated with reserpine, where the store has been removed, only the direct parasympathetic action of acetylcholine is observed. Infusion of norepinephrine presumably "recharges" the stores and there is reversion of normal activity. Burn explains the action of bretylium, which does not deplete norepinephrine, by postulating that it blocks the action of acetylcholine which is released from the postganglionic terminals and hence release of norepinephrine does not occur despite its presence in the tissues.

Some support for the hypothesis of a cholinergic transmitter has been given by Chang and Rand[65] who tested the effect of hemicholinium on a series of isolated preparations in which the sympathetic nerves could be stimulated. Hemicholinium is a drug which interferes with the synthesis of acetylcholine by various nerve tissues. Hemicholinium inhibited the effect of sympathetic nerve stimulation in these experiments. However, Gardiner and Thompson[66] have found that hemicholinium is inactive in another isolated sympathetic nerve-effector preparation. Gillespie and Mackenna[64] have shown that the motor effect produced by stimulation of the sympathetic nerve supply to isolated segments of colon from reserpine treated rabbits was abolished after section and degeneration of the parasympathetic nerves or after stimulation of these nerves to exhaustion. They concluded that the motor response to nerve stimulation after reserpine is mediated by the parasympathetic nerves and is not due to cholinergic fibers in the sympathetic outflow.

The provocative hypothesis of Burn and colleagues concerning the sympathetic neuroeffector junction and its validity in explaining the action of sympathetic blocking agents will require considerably more work to establish it securely. *The Role of Catecholamine Stores in Determining the Reactivity of the Cardiovascular System.* Schmiterlow[67] demonstrated that norepinephrine was present in the walls of blood vessels and Raab[68] and Goodall[69] that it was present in the heart. Raab[70,71] demonstrated that infused norepinephrine was taken up by heart tissue. Hence, the evidence was at hand that a depot of catecholamine existed in cardiac and vascular tissue and that this store could be effected by elevations in circulating catecholamines. Reserpine[57] and guanethidine deplete catecholamines stores. Furthermore, it has been demonstrated that reserpine and guanethidine alter the responsiveness of the cardiovascular system to many drugs. The sympathetic stimulant effects of nicotine and acetylcholine (after atropine) are reduced by treatment with reserpine.[72] The stimulant actions of catecholamines are augmented by guanethidine or reserpine while the stimulant action of noncatechol phenylalkylamines, e.g. tyramine, are reduced. Burn and colleagues maintain that all these changes in reactivity are secondary to reduction in the amount of catecholamine in the peripheral depots. They envision that the stores in the normal condition "leak" sufficient amines to sustain effectors in some degree of tone; when the tone is diminished due to reduction in the size of the store the effector can respond more fully to a stimulus. Burn and coworkers maintain that tyramine-like amines are depressed because they normally do not act directly on effectors but indirectly by releasing norepinephrine from the store. The norepinephrine then interacts with the effector. If the store is depleted then tyramine is inactive. Strong support for such an hypothesis is gained by the fact that infusion of norepinephrine into animals treated with guanethidine or reserpine will revert the actions of catecholamine and tyramine toward or to normal.[39,57] This has been attributed to a "repriming" of stores by the infused norepinephrine. However, working with the nictitating membrane of the cat Fleming and Trendelenburg[73] have concluded that there is no direct relationship between depletion of the catecholamine stores and supersensitivity to norepinephrine. They found that depletion must persist for several days in order for supersensitivity to develop. Likewise, Muscholl[74] has presented evidence that norepinephrine infusion into reserpinized rats will restore the pressor response to tyramine but does not increase the levels of catecholamine in these hearts which have been depleted of their stores.[74] Furthermore, we have found (unpublished data) by direct measurement that guanethidine in *in vitro* experiments does not alter the catecholamine content of rabbit aortic strips; nonetheless, guanethidine in *in vitro* experiments potentiates norepinephrine and suppresses tyramine responses in rabbit aortic strips. Lastly it is known that cocaine produces a differential action on the responses to catecholamines and tyramine which is very similar to that produced by reserpine and guanethidine.[75] Cocaine does not deplete catecholamine stores. Hence, it is possible to produce alterations in the vascular reactivity to amines without depleting peripheral stores of catecholamines. Burn and Rand[57] and MacMillan[76] elaborated a theory to explain the cocaine effect by having cocaine influence the entry and exit from the store but not the quantity of amine in the store. Some evidence which can be interpreted to support this thesis has been given.[77,78,79,80] A lengthy discussion of this aspect of the work is not within the scope of this review. From our own work with reserpine, guanethidine, cocaine and drugs with similar actions we have suggested—on the bases of indirect evidence—that the changes in reactivity produced by these drugs might reflect alterations in the "receptor substance" in the effector organs. Under these circumstances the normal interactions of the effector with the various amines would be modified and this could account for the changes in reactivity. It is obvious that further work will be required to resolve the intricate and important problem of the effect of catecholamine stores on the reactivity of the cardiovascular system to sympathomimetic drugs and to elucidate the relationship between chemical agents which influence vascular reactivity and their influence on catecholamine stores.

REFERENCES

1. Boura, A. L. A., Copp, F. C., and Green, A. F.: New antiadrenergic compounds. Nature, Lond. 184: B. A. 70, 1959.
2. Green, A. F.: The effects of bretylium and allied agents on adrenergic neurones. CIBA Foundation Symposium on Adrenergic Mechanisms. Little, Brown and Company, Boston, 1960.
3. Hey, P. and Willey, G. L.: Choline 2:6-xylyl ether bromide; an active quaternary local anesthetic. Brit. J. Pharmacol., 9: 471, 1954.
4. Exley, K. A.: The blocking action of choline 2:6-xylyl ether bromide on adrenergic nerves. Brit. J. Pharmacol., 12: 297, 1957.
5. McLean, R. A., Geus, R. J., Pasternack, J., Mattis, P. A., and Ullyot, G. E.: Pharmacology of trimethyl [2-(2,6-dimethylphenoxy) propyl]-trimethyl-ammonium chloride monohydrate. J. Pharmacol. Exper. Therap., 129: 17, 1960.
6. Maxwell, R. A., Mull, R. P., and Plummer, A. J.: [2-(octahydro-1-azocinyl)-ethyl]-guanidine sulfate (Su-5864), a new synthetic antihypertensive agent. Experientia, 15: 1, 1959.

7. Maxwell, R. A., Plummer, A. J., Schneider, F., Povalski, H., and Daniel, A. I.: Pharmacology of [2-(octahydro-1-azocinyl)-ethyl]-guanidine sulfate. J. Pharmacol. Exper. Therap., 128: 22, 1960.

8. Maxwell, R. A., Ross, S. D., and Plummer, A. J.: Pharmacology of hexahydro-1-azepinepropionamidoxime dihydrochloride (Su-4029). J. Pharmacol. Exper. Therap., 123: 128, 1958.

9. Page, I. H. and Dustan, H. P.: A new, potent antihypertensive drug. J. Amer. Med. Assoc., 170: 1265, 1959.

10. Pigeon, G., Davignon, J., Biron, P., Dufalt, C., and Genest, J.: Guanethidine administration in 28 hypertensive patients. Canad. Med. Assoc. J., 83: 690, 1960.

11. Bain, W. A.: Interference with the release of transmitter in response to nerve stimulation. CIBA Foundation Symposium on adrenergic mechanisms. Little, Brown and Company, Boston, 1960.

12. Maxwell, R. A.: Pharmacological investigation of guanethidine. Symposium on guanethidine sponsored by the University of Tennessee College of Medicine. CIBA, Summit, New Jersey, 1960.

13. Aviado, D. M.: Sympathetic blocking drugs for the treatment of hypertension. Progress of Med. Sci., 241: 650, 1961.

14. McCubbin, J. W.: The clinical and experimental pharmacology of guanethidine. Med. Clin. North Amer., 45: 409, 1961.

15. Exley, K. A.: The blocking action of choline 2:6-xylyl ether bromide on adrenergic nerves. J. Physiol., 133: 70P, 1956.

16. Exley, K. A.: The persistence of adrenergic nerve conduction after TM_{10} or bretylium in the cat. CIBA Foundation Symposium on Adrenergic Mechanisms. Little, Brown and Company, Boston, 1960.

17. McLean, R. A., Geus, R. J., Mohrbacker, R. J., Mattis, P. A., and Ullyot, G. E.: A series of 2,6-disubstituted phenoxyethyl ammonium bromides with true sympatholytic properties. J. Pharmacol. Exper. Therap., 129: 11, 1960.

18. Boura, A. L. A., Green, A. F., McCoubrey, A., Laurence, D. R., Moulton, R., and Rosenheim, M. L.: Darenthin, hypotensive agent of new type. Lancet, 2: 17, 1959.

19. Boura, A. L. A. and Green, A. F.: The actions of bretylium: adrenergic neurone blocking and other effects. Brit. J. Pharmacol., 14: 536, 1959.

20. Smirk, F. H. and Hodge, J. V.: Hypotensive action of bretylium tosylate. Lancet, 2: 673, 1959.

21. Dollery, C. T., Emslie-Smith, D., and McMichael, J.: Bretylium tosylate in the treatment of hypertension. Lancet, 1: 296, 1960.

22. Frohlich, E. D. and Freis, E. D.: Clinical trial of guanethidine, a new type of antihypertensive agent. Med. Ann. of Dist. Columbia, 28: 419, 1959.

23. Richardson, D. W. and Wyso, E. M.: Effective reduction in blood pressure without ganglionic blockade. Virg. Med. Monthly, 86: 377, 1959.

24. Leishman, A. W. D., Matthews, H. L., and Smith, A. J.: Guanethidine, hypotensive drug with prolonged action. Lancet, 2: 1044, 1959.

25. Page, I. H., Hurley, R. E., and Dustan, H. P.: The prolonged treatment of hypertension with guanethidine. J. Amer. Med. Assoc., 175: 543, 1961.

26. Leishman, A. W. D., Matthews, H. L., and Smith, A. J.: Further experience with guanethidine. Lancet, 2: 5, 1961.

27. Dollery, C. T., Emslie-Smith, D., and Milne, M. D.: Clinical and pharmacological studies with guanethidine in the treatment of hypertension. Lancet, 2: 381, 1960.

28. Hurley, R. E., Page, I. H., and Dustan, H. P.: Bretylium tosylate as an anti-hypertensive drug. J. Amer. Med. Assoc., 172: 2081, 1960.

29. Leishman, A. W. D.: Sympathetic-blocking drugs in the management of hypertension. The Practitioner, London, 186: 72, 1961.

30. Dollery, C. T., Emslie-Smith, D., and McMichael, J.: Bretylium tosylate in the treatment of hypertension. Lancet, 2: 261, 1960.

31. Evanson, J. M. and Sears, H. T. N.: Comparison of bretylium tosylate with guanethidine in the treatment of severe hypertension. Lancet, 2: 387, 1960.

32. Rowe, G. G., Maxwell, G. M., Castillo, C. A., Clifford, J. E., and Crumpton, C. W.: Hemodynamic effects of β methyl-2,6-dimethylphenyl ether of choline (SKF-6890) on the systemic and coronary circulation. J. Lab. Clin. Med., 56: 409, 1960.

33. Taylor, S. H. and Donald, K. W.: The circulatory effects of bretylium tosylate and guanethidine. Lancet, 2: 389, 1960.

34. Doyle, A. E., Fraser, J. R. E., and Smith, P. K.: Effects of bretylium tosylate on blood pressure, cardiac output and renal function in hypertension. Brit. Med. J., 2: 422, 1960.

35. Conway, J.: Clinical pharmacology of bretylium tosylate: preliminary observations. Ann. N. Y. Acad. Sci., 88: 956, 1960.

36. Freis, E. D., Suguira, T., and Liptak, D.: Selective inhibition of the sympathetic nervous system in man with bretylium tosylate, a new antihypertensive agent. Circulation, 22: 191, 1960.

37. Imhof, P. R., Lewis, R. C., Page, I. H., and Dustan, H. P.: Effects of guanethidine on arterial pressure and vasomotor reflexes. Symposium on guanethidine, sponsored by the University of Tennessee College of Medicine. CIBA, Summit, New Jersey, 1960.

38. Kirkendall, W. M., Fitz, A. M., Van Hecke, D. C., Wilson, W. R., and Armstrong, M. L.: Hemodynamic and clinical effects of guanethidine. J. Iowa Med. Soc., 51: 69, 1961.

39. McCubbin, J. W., Kaneko, Y., and Page, I. H.: The peripheral cardiovascular actions of guanethidine in dogs. J. Pharmacol. Exper. Therap., 131: 346, 1961.

40. Richardson, D. W., Wyso, E. M., Magee, J. A., and Cavell, G. C.: Circulatory effects of guanethidine. Circulation, 22: 184, 1960.

41. Lichtlen, P., Schaub, F., and Buhlmann, A.: Clinical and experimental studies on the antihypertensive effect of guanethidine. German Medical Monthly, 5: 1, 1960.

42. Aviado, D. M. and Dil, A. H.: The effects of a new sympathetic blocking drug (bretylium) on cardiovascular control. J. Pharmacol. Exper. Therap., 129: 328, 1960.

43. Nash, C. W. and Gillis, C. N.: The influence of reserpine on the pressor activity of bretylium and guanethidine. The Pharmacologist, 2: 81, 1960.

44. Gaffney, T. E.: Effect of guanethidine and bretylium on the dog heart-lung preparation. Circ. Res., 9: 83, 1961.

45. Yelnosky, J. and Mortimer, L. C.: A brief study of the sympathomimetic cardiovascular effects of bretylium. Arch. int. Pharmacodyn., 130: 200, 1961.

46. Abboud, F. M., Eckstein, J. W., and Pereda, S. A.: Acute hemodynamic responses to intravenous and intra-arterial guanethidine. Clin. Res., 9: 136, 1961.

47. Gaffney, T. E. and Braunwold, E.: An analysis of the hemodynamic effects of guanethidine. Clin. Res., 9: 139, 1961.

48. Ford, R. V. and Fallis, N.: The physiology of guanethidine with special reference to renal function. Symposium on Guanethidine Sponsored by the University of Tennessee, College of Medicine. CIBA, Summit, New Jersey, 1960.

49. Euler, U. S. v. Noradrenaline. Charles C. Thomas, Springfield, Illinois, 1956.

50. Sheppard, H. and Zimmerman, J.: Effect of guanethidine on tissue catecholamines. The Pharmacologist, 1: 69, 1960.

51. Cass, R., Kuntzman, R., and Brodie, B. B.: Norepinephrine depletion as a possible mechanism of action of guanethidine. Proc. Soc. Exper. Biol. Med., 103, 871, 1960.

52. Butterfield, J. L. and Richardson, J. A.: Acute effects of guanethidine on myocardial contractility and catecholamine levels. Proc. Soc. Exper. Biol. Med., 106: 259, 1961.

53. Carlsson, A., Rosengren, E., Bertler, A., and Nillson, J.: Effect of reserpine on the metabolism of catecholamines. In Psychotropic Drugs, Edited by Garattini and Ghetti. Elsevier Pub. Co., New York, 1960.

54. Burn, J. H. and Rand, M. J.: Reserpine and noradrenaline in artery walls. Lancet, 2: 1097, 1957.

55. Bein, H. J., Gross, F., Tripod, J., and Meier, R.: Experimentelle Untersuchungen über "Serpasil" (Reserpin), ein neues, sehr wirksamer Rauwolfia-alkaloid mit neuartiger Zentraler Wirkung. Schweiz. med. Wschr., 83: 1007, 1953.

56. Plummer, A. J., Earl, A. E., Schneider, J. A., Trapold, J., and Barrett, W.: Pharmacology of rauwolfia alkaloids including reserpine. Ann. N. Y. Acad. Sci., 59: 8, 1954.

57. Burn, J. H. and Rand, M. J.: The action of sympathomimetic amines in animals treated with reserpine. J. Physiol., 144: 314, 1958.

58. Muscholl, E. and Vogt, M.: The action of reserpine on the peripheral sympathetic system. J. Physiol., 141: 132, 1958.

59. Iggo, A. and Vogt, M.: Preganglionic sympathetic activity in normal and in reserpine-treated cats. J. Physiol., 150: 114, 1960.

60. Trendelenburg, U. and Gravenstein, J. S.: Effect of reserpine pretreatment on stimulation of the accelerans nerve of the dog. Science, 128: 901, 1958.

61. Uvnäs, B.: Sympathetic vasodilator system and blood flow. Physiol. Rev., 40: 69, 1960.

62. Burn, J. H. and Rand, M. J.: The effect of precursors of noradrenaline on the response to tyramine and sympathetic stimulation. Brit. J. Pharmacol., 15: 47, 1960.

63. Hukovic, S.: Isolated rabbit atria with sympathetic nerve supply. Brit. J. Pharmacol., 14: 372, 1959.

64. Gillespie, J. S. and MacKenna, B. R.: The inhibitory action of the sympathetic nerves on the smooth muscle of the rabbit gut, its reversal by reserpine and restoration by catechol amine and by DOPA. J. Physiol., 156: 17, 1961.

65. Chang, V. and Rand, M. J.: Transmission failure in sympathetic nerves produced by hemicholinium. Brit. J. Pharmacol., 15: 588, 1960.

66. Gardiner, J. E. and Thompson, J. W.: Lack of evidence for a cholinergic mechanism in sympathetic transmission. Nature, 191: 86, 1961.

67. Schmiterlöw, C. G.: The nature and occurrence of pressor and depressor substances in extracts from blood vessels. Acta. Physiol. Scand., 16: suppl. 56, 1948.

68. Raab, W.: The pathogenic significance of adrenalin and related substances in the heart muscle. Exper. Med. Surg., 1: 188, 1943.

69. Goodall, McC.: Studies of adrenaline and noradrenaline in mammalian heart and suprarenals. Acta Physiol. Scand., 24: suppl. 85, 1951.

70. Raab, W. and Gigee, W.: Specific avidity of heart muscle to absorb and store epinephrine and norepinephrine. Cir. Res., 3: 553, 1955.

71. Raab, W. and Gigee, W.: Uptake and breakdown of catecholamines in vascular tissue. Angiology, 9: 283, 1958.

72. Burn, J. H., Leach, E. H., Rand, M. J., and Thompson, J. W.: Peripheral effects of nicotine and acetylcholine resembling those of sympathetic stimulation. J. Physiol., 148, 332, 1959.

73. Fleming, W. W. and Trendelenburg, U.: The development of supersensitivity to norepinephrine after pretreatment with reserpine. J. Pharmacol. Exper. Therap., 133: 41, 1961.

74. Muscholl, E.: Die Hemmung der Noradrenalin-Aufnahme des Herzens durch Reserpin und die Wirkung von Tyramin. Naunyn-Schmiedeberg's arch. exp. u. Pharmak., 240: 234, 1960.

75. Fleckenstein, A. and Stöckle, D.: Zum Mechanismus der Wirkungs-Verstärking und Wirkungs-Abschwächung Sympathomimetischer Amine durch Cocain und andere Pharmaka. Arch. exper. Path. u. Pharmakol., 244: 401, 1955.

76. MacMillan, W. H.: A hypothesis concerning the effect of cocaine on the action of sympathomimetic amines. Brit. J. Pharmacol., 14: 385, 1959.

77. Trendelenburg, U.: The supersensitivity caused by cocaine. J. Pharmacol. Exper. Therap., 125: 55, 1959.

78. Whitby, L. G., Hertting, G., and Axelrod, J.: Effect of cocaine on the disposition of noradrenaline labeled with tritium. Nature, 187: 604, 1960.

79. Burn, G. P. and Burn, J. H.: Uptake of labeled noradrenaline by isolated atria. Brit. J. Pharmacol., 16: 344, 1961.

80. Muscholl, E.: Effect of cocaine and related drugs on the uptake of noradrenaline by heart and spleen. Brit. J. Pharmacol., 16: 352, 1961.

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EDITORIALS

Avoiding Drug Sensitivities

Until Richert coined the word anaphylaxis to denote the deaths resulting from the foreign serum of diptheria antitoxin, sudden death due to the administration of a medicament was unheard of. Physicians were aware of allergic reactions to therapeutic agents, but these were generally mild, uncommon, and most often caused by aspirin or quinine or ipecac. There was in the twenties a flurry of cases of malignant neutropenia from antipyrine and related drugs which subsided when their origin was recognized and the drug discontinued.

In the thirties, Domagk gave us sulfanilamide and there came a sharp upswing in the number, variety and severity of drug reactions. They were numerous and severe, because the sulpha drugs were potent sensitizers and were given freely even in the most trifling infections. The reactions varied widely in their manifestations of sensitivity, since they could produce fever, multiform rashes and several blood dyscrasias.

In penicillin Fleming gave us not only the most potent antibiotic but also the commonest cause of drug sensitivity with the widest range of manifestations of that sensitivity and productive of by far the largest number of serious and of fatal anaphylactic reactions. Today, scientific medicine is advancing at a breathless rate, sensitizing drugs are being offered us in increasing amounts, so that instead of being a rarity, drug allergy has become a part of every physician's clinical experience.

The frequency and severity of reactions produced by any sensitizing drug must be weighed against the usefulness of the drug. When reactions are common and severe we are justified in abandoning the drug as happened to phenylethylhydantoin. When the reactions are rare even though at times dangerous, and the drug is extremely valuable, then the reactions must be accepted as a calculated risk. Viewed in this perspective, the reactions to penicillin are far outweighed by the usefulness of the drug. It is not that academic, however. No matter how rare the serious reactions are in the overall picture, a death is always a catastrophe to the patient, to the family and to the physician who induced it. In a table of statistics it may be only a tiny fraction of a percent, but to those involved in the experience, it is an irrevocable unit of disaster.

Some of the anaphylactic death could have been prevented by precautions so simple, that they should have been taken routinely. Such measures apply equally to patients who died slowly from drug induced exfoliative dermatitis, dermatomyositis, malignant neutropenia and polyarteritis nodosa. Such patients are just as dead and unnecessarily so as are the victims of a fatal drug anaphylaxis.

Three simple rules, if followed, can greatly reduce the hazards from sensitizing drugs. It should be understood that anaphylactic sensitivity nearly always is the result of previous administration of the drug by a physician. The patient who has had any untoward reaction to a previous exposure to a drug is a potential candidate for anaphylactic shock on a later exposure to it. Previous exposure to a drug except in the rare instance of reaction on first exposure, usually sets the stage for a drug sensitivity, therefore, it always behooves us to find out who gave the patient what, before ordering such a drug. The patient may have been sensitized to penicillin in milk or vaccines as silk is used in filtration of certain vaccines during preparation. Thus patients should be questioned about their past experience with the drug under consideration. Have they had rashes, hives and soreness at the injection sites? Of the thirty fatalities investigated by Rosenthal no such inquiry was made in fourteen but subsequent search established it in seven.[1]

A patient should be told about his drug sensitivity and warned accordingly. Kern[2] describes the case of a patient who was excluded from a group being given a reactive prophylactic injection of penicillin because he had a positive conjunctival test reaction. Not being told about his sensitivity the patient a week later consulted another physician for a new ailment and this physician gave him an injection of penicillin that was promptly fatal. In Rosenthal's report of thirty deaths from 1952-1957, twelve occurred in the doctors offices and three more died minutes later on removal from office to hospital.

Another simple precaution is to question a patient for an obvious allergic history. If patients have had asthma, hay fever, eczema, hives and sensitivity to any drugs they are much more easily sensitized to drugs than those with a negative history. Especially should such patients who have received penicillin be tested before being given penicillin again. In principle such patients should be guarded against unnecessary sensitization such as routinely administering a "shot" of penicillin for the simplest infection. Although children show fewer allergies than adults, the atopic child is oftener the victim. The literature reveals case after case in which the victim of a fatal drug injection was an asthmatic of known and long standing and therefore, in danger from any parenteral drug administration.

A third rule for the physician who wishes to avoid sensitivity deaths is to familiarize himself both with the large number of sensitizing drugs and also with the numerous manifestations of drug allergies so that he may be able to diagnose them. Fever is a manifestation which unfortunately has at times led to the continued use of the antibiotic that caused the fever in order to treat the supposed infection. Various skin manifestations such as exfoliative dermatitis, dermatomyositis and polyarteritis nodosa must always be born in mind.

Kern[2] offers certain rules of prevention which we should all take to heart. First is to avoid unnecessary sensitization by routine use of penicillin in most trifling infections or its routine use before operation or in a normal person during tooth extraction, or routine use of depot penicillin by parenteral injection in rheumatic fever. Second, we are urged to avoid sensitizing those with an allergic history. Topical application of antibiotics is not good practice especially in lozenges, troches, sprays and ointments.

If an allergenic drug is to be administered to any patient it calls for certain precautions. There should be a clear indication for its use. Only in the gravest infection when there is no time to establish sensitivities is an early use of antibiotics justified. Oral antibiotics should be preferred though deaths rarely can still occur in allergic patients. If an injection is necessary, it should be given low enough in an extremity to permit application of a tourniquet. Although tests for drug sensitivity are of limited use only, nevertheless, patients should be tested who have received penicillin in the past, especially if they have a strong personal or family history of allergy. In rare instances where there are compelling reasons for the use of a drug notably penicillin and no other is available, then pretreatment with ACTH and corticosteroids can be used, aided at times by rapid desensitization. In general, the best thing to do in the presence of a present or past sensitivity to a particular substance is to use another drug.

It is clear enough from the above that great discoveries are not always an unmixed blessing. In addition to the intellectual satisfaction that comes from doing a thing right, there are medicolegal implications in the expanding field of drug sensitivities. Malpractice suits based on drug reactions are decidedly on the increase. Of the last fifty claims made against members of the medical profession 10 or 20 per cent were the result of such drug reactions. Following the simple rules laid down by Kern should protect the patient and the doctor alike from unexpected complications.

L.H.N.

REFERENCES

1. Kern, Richard K.: Anaphylactic drug reactions, JAMA 179:19, 1962.
2. Rosenthal, A.: Follow up study of fatal penicillin reactions. Special Report. JAMA 167-1118, 1958.

Measles Vaccine

Almost every scientific paper has a section on materials and methods. A close perusal of this section usually reveals the problem to be solved, animals used, techniques and instrumentation employed. In concise form it presents the modern methods used to obtain an answer to a question which the scientist asks of nature. In connection with the preparation of a measles virus vaccine it is interesting to behold the painstaking steps from the first isolation of a measles virus by Enders[1] and his group, to the means taken to attenuate it until finally it is ready for clinical trial.

The vaccine used by Karelitz and his associates[2] was received from Dr. Enders. It was an Edmontson strain. It had first been passed 28 times in primary human kidney cells in tissue culture, then six times in the amniotic sac of the developing duck embryo. It was then passed once through primary monkey kidney cells. The vaccine used by Karelitz was the 13th chick embryo tissue culture passage. After so many passages there was always the danger of extraneous viruses having invaded the cultures and so safety tests for detection of extraneous viruses were carried out on rabbits, suckling and adult mice and guinea pigs. The final product still had to be tested for sterility including acid fast organisms. The anaphylactogenic tests had to be carried out in guinea pigs to make sure the vaccine was incapable of sensitizing the test animal. Only then was the vaccine considered specific and safe for human trial. Those who wonder why a pharmaceutical product costs what it does would do well to ponder the steps necessary in the preparation of a measles vaccine.

Once the vaccine is ready, several questions arise, such as: killed vs. live vaccine, the route of administration, whether it should be instilled in the eye, sprayed into the nose or given subcutaneously. Some answers are already available. Oral, nasal or ocular routes have not been regularly effective. On the other hand, the subcutaneous route has led to production of immunity in over 95 per cent of treated children. A very small proportion develop more than a mild reaction, but never more than a case of mild measles. Encephalitis and pneumonia are eliminated.[4] When we recall that 50 per cent[3] of all measles cases showed some abnormality in the electroencephalogram, while none of the vaccinated group did we begin to see the full scope of the benefit to mankind of the vaccine. Aside from the terrible toll in human life which measles takes it should be recalled that of the 50 per cent that show electroencephalograpic evidence of brain involvement, a small proportion, one in 600 of the total population, are left with permanent brain damage as a sequel to encephalitis. Although this seems like a small proportion it still means that 300,000 postencephalitic cripples would be expected after measles in a population of 180 million.

The mastery of measles which the vaccine now promises has made it possible to choose the best time for inoculation, because it can be induced at will. Epidemics in schools, hospitals and military camps will be prevented, no deaths will occur and no permanent C.N.S. complications will oppress society and individual families. The children inoculated will not feel ill, they cannot spread the disease as those that suffer ordinary measles can, and do.[2]

Some questions still remain unanswered. Will revaccination be necessary several years later? The search for an attenuated strain will continue until one will be found that produces no symptoms whatsoever. What is already certain is the attenuated live measles virus vaccination is the newest and one of the greatest accomplishments in the history of public health.

The pediatricians and the public at large are beholden to Dr. John F. Enders and his many coworkers in the laboratories and the clinic for this brilliant achievement as a result of which not only our society but all society must benefit. Our country can take pride in the fact that in the field of molecular biology and virology it is leading the world. At least in this area our excellence is directed towards human welfare and not towards human annihilation.

L. H. N.

BIBLIOGRAPHY

1. Enders, J. F., et al.: Studies on Attenuated Measles-Virus Vaccine I-VIII. New Eng. J. Med., 263, 153, July 28, 1960.

2. S. Karelitz, F. Esposito, S. Gittelson, H. Goldman, A. Ross, F. S. Markham, J. M. Ruegsegger, and H. R. Cox: Measles Vaccine. J.A.M.A., 177: 537, Aug. 26, 1961.

3. Gibbs, F. A., et al.: Electroencephalographic Abnormality in Uncomplicated Childhood Diseases. J.A.M.A., 171: 1050, October 24, 1959.

4. Gibbs, F. A., Gibbs, E. L., and Rosenthal, I. M. Electroencephalographic studies of children immunized against measles with live Attenuated Virus Vaccine. New Eng. J. Med., 264: 800, April 20, 1961.

A New Medical Education Loan Guarantee Program

A far reaching new medical education loan guarantee program is now under way in American medicine. The goal of this program is to help eliminate the financial barrier to medicine for all who are qualified and accepted by approved training institutions. It is designed to provide a means of financing a substantial portion of the cost of a medical education.

The loan program for medical students, interns and residents is the result of a cooperative effort by American medicine and private enterprise.

The program is administered by the American Medical Association's Education and Research Foundation. The ERF has established a loan guarantee fund. On the basis of this fund, the bank will lend up to $1,500 each year to students. The ERF in effect acts as cosigner. For each $1 on deposit in the ERF's loan guarantee fund, the bank will lend $12.50.

More than 3,300 students, interns and residents have borrowed more than $6,000,000 through this fund since it was started last February. Physicians and others have contributed almost $700,000 to the loan guarantee fund, which makes possible these loans

The guarantee fund is almost depleted and more money is needed immediately to keep up the loan program. Eventually it will become self-sustaining as loans are repaid, but right now substantial financial help is needed. Your check to the AMA-ERF, 535 North Dearborn Street, Chicago, will help to keep this important program viable. Contributions to the Foundation are tax deductible.

Oxygen Therapy Techniques

Elsewhere in this issue is a consideration of the importance of carrying oxygen equipment for emergency use. It is interesting that although there are presently six different methods of administering oxygen, few comparisons of the effectiveness and usefulness of the various methods of administration have appeared. Most of the many studies have evaluated only one or two modes of administration. Aside from the great variation of the techniques employed and the criteria for evaluation, valid comparisons between the many studies cannot be made.

To overcome the confusion that exists, a study was undertaken by Kory et al to compare by uniform methods the relative oxygen concentrations achieved at various oxygen flow rates, the CO_2 concentration developed, and the comfort of the various techniques of oxygen administration in current clinical use. The subjects were twenty male volunteers free from cardiopulmonary disease and six major techniques of administration were tested; the plastic nasal cannula, the plastic mask, a nasal catheter, plastic face tent, rubber BLB or OEM face masks and the Oxygen tent.

Several factors must be taken into consideration as regards over-all effectiveness of each of the methods to be employed, the patients comfort, the ease of administration, economy and the overall evaluation. This last includes a knowledge not merely of the amount of oxygen in the nose, or mouth or nasopharynx, but the end expiratory air which is the alveolar air sample and is the best measure of gaseous exchange in the lungs.

The results confirm well recognized inefficiency of the oxygen tent as a method of administering oxygen. It is, of course, quite acceptable to the normal subject under test conditions, but some patients react to the oxygen tent with anxiety and a feeling of claustrophobia. Furthermore, there is a noise of the motor and the tent may be a serious fire hazard. The tent in the past has been used to provide an air conditioned environment for the patient, but there are efficient and relatively inexpensive air conditioning units currently available that makes use of the oxygen tent for such a person obsolete. The authors believe that the oxygen tent therapy in adults should be used only when patients can tolerate no other type of oxygen administration, and that such instances are exceedingly rare.

Plastic face masks and face tents were reasonably comfortable for short periods but were found more or less annoying for longer periods. The rubber face mask was consistently found to be uncomfortable, hot, heavy and tight and if the face mask seal were to be made tighter this discomfort would have been accentuated. The nasal catheter was rated as the most uncomfortable technique tested and many subjects experienced great discomfort as the nasal catheter was being inserted.

The plastic nasal cannula was quite well tolerated and appeared to be the most desirable technique for administering oxygen. Previously, objections to its use had been raised because mouth breathing with a nasal cannula in place was supposed to reduce the amount of oxygen delivered to the alveoli. Kory et al, however, provide strong evidence that the mouth open position does not lessen the effectiveness of oxygen administration by either the nasal catheter or the nasal cannula. With flow rates of 8-10 liters per minute the plastic nasal cannula, was first in the order of preference for oxygen administration and the oxygen tent, the least in the order of preference.

It must be remembered that Kory's subjects were normal and received oxygen for relatively short periods of time. If their results will be confirmed on sick people who are obliged to receive oxygen over relatively long periods, then the method of administering oxygen by the nasal plastic cannula will become a great simplification not only in hospital practice but also in emergency situations.

L.H.N.

REFERENCES

1. Kory, R. C., Bergmann, J. C., Sweet, R. D., and Smith, J. R.: Comparative evaluation of oxygen therapy techniques. J.A.M.A., 179:767, 1962.

Emergency Oxygen Outside The Hospital

The physician is urged from various quarters to carry oxygen equipment at all times, and to have ambulatory patients with pulmonary disease or angina of exertion supply themselves with small, portable units. Certain of the recommendations are valid, but much of the portable equipment offered is inadequate for the relief of anoxemia, and claims of effectiveness of oxygen in certain disorders are unproved. The use of oxygen for "alcoholic over-indulgence . . . sea and air sickness . . . morning indisposition . . ." is also unwarranted.

First Necessities—Even with an adequate device, oxygen is likely to be used improperly or prematurely in some circumstances. In asphyxia (as from drowning), for example, the first necessity is to establish a clear airway and at once artificially ventilate the lungs (usually by mouth-to-mouth breathing). Since every second counts, losing time to obtain oxygen equipment can be disastrous to the patient. There is enough oxygen present (about 15 per cent) in the mouth-to-mouth air to revive an apneic patient whose cardiovascular system is still functioning.

If cardiac arrest has also occurred, manual pressure on the sternum (closed-chest cardiac massage) should be started immediately and applied about once per second, at the same time as mouth-to-mouth respiration. If only one person is available, he should apply cardiac massage for 30 seconds alternating with three or four breaths. If resuscitation equipment can be brought meanwhile, it will have the advantage of more effectively ventilating the lungs and restoring oxygenation of the tissues.

Required Concentrations—There are few emergencies treated outside the hospital in which 95 or 100 per cent oxygen is needed, for example, carbon monoxide poisoning. Special equipment is then required which will deliver the oxygen in adequate volume and pressure, something most portable devices cannot do for long—if at all. For emergency treatment of carbon monoxide poisoning, the portable equipment required must be capable of delivering an oxygen flow of about ten liters per minute through either a mask or a demand system which does not permit rebreathing of expired air. Close to 100 per cent oxygen is also desirable for the acute anoxia of pulmonary edema; but lower concentrations are also valuable and may be given at the same time as morphine, venesection (or application of tourniquets), rapid digitalization and parenteral diuretics.

Coronary Disease—In acute coronary occlusion, the relief of pain, anxiety and shock and the control of arrhythmia are of prime importance; but if at least 40 per cent oxygen (a flow rate of about six liters per minute) can be supplied for at least 15 minutes, it can have considerable value during the interval before an ambulance with oxygen equipment arrives or the patient is taken to a hospital. In relieving angina of effort, however, the oxygen flow available from small portable or pocket equipment has not been shown to have greater value than a placebo.

In the later phases of an asthmatic attack where bronchial plugging has occurred, hypoxemia may be severe, and oxygen (40 per cent or more) can again be valuable—more so than the often recommended mixture of 20 per cent oxygen and 80 per cent helium. In emergency treatment, however, oxygen is less important than measures designed to overcome anxiety and bronchial spasm.

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Cholesterol And D-Thyroxine

There is a large body of evidence which suggests that hyper β lipoproteinemia or hypercholesteremia tend to produce or aggravate arterial pathology. This has led to the belief that lowering of serum lipids especially the betalipoprotein fraction which transports the cholesterol should be an important clinical goal which may lessen the morbidity of the atherosclerotic process. This belief has spilled over into not only medical journals, but also magazines for the laity and the daily press. Doctors are now plagued by patients who want to know their cholesterol blood level and for diets as well as medications which will lower their blood cholesterol. Who of us has not been struck by advertisements for liquid oil or corn oil margarine. Saturated and unsaturated fats now form the basis for "learned" subjects of discussion at the dinner table.

The National Board of Health of Sweden recently recommended for the people of that country a general restriction on fat intake and for those "susceptible" to atherosclerosis a shift to polyunsaturated fats. Our own National Heart Institute is about to launch an extensive program to determine whether cholesterol lowering diets can be made sufficiently palatable to be accepted by the American public, and if so, whether their use over a five or ten year period would influence favorably the incidence of coronary heart disease. It is true that as yet, no sound evidence exists to show that diminishing the amount of the cholesterol in the blood will reduce the incidence of either coronary sclerosis or myocardial infarction. And it is also true that other dietary factors such as the amount and kind of carbohydrate eaten as well as the amount of protein, may play a part in altering the level of cholesterol.[2] Nevertheless, an elevated blood cholesterol like an elevated blood sugar is abnormal. A statistical relationship between the amount of cholesterol and other fats in the blood and atherosclerotic disease has been established. Besides, in principle, every abnormality in physiology and biochemistry which can be eliminated, should be.

To lower the level of cholesterol in the blood to a significant degree by dietary restriction requires rigid observation of the rules and elimination of numerous items that make food tasty. Moderate curtailment, though it may quiet the conscience of the physician and satisfy the patient really accomplishes little or nothing. Since there is no assurance that the desired cholesterol reduction will be accomplished by diet, not every housewife is able or willing to follow a strict regimen in the kitchen. Perhaps until we know more, there should be moderate curtailment of the intake of fats by the general population with reasonable substitution of polyunsaturated for the saturated variety. This in essence is the recommendation of the Ad Hoc Committee on Dietary Fat and Atherosclerosis of the American Heart Association.[3]

The search for lipemia lowering agents has gone through the gamut of lipotropic agents and heparin, both of doubtful value, to nicotinic acid which probably exerts its effect through its anorexogenic action, through estrogens which on males exerts a totally unacceptable psychosexual influence to thyroid and its analogies. Nothing need be said any longer about triparanol which has been withdrawn from the market because of its frequent toxic action.

The thyroid hormone is capable of lowering blood cholesterol and inhibiting atherosclerosis in several animal species. Recently attention has been given to some of the isomers of thyroxin and potent cholesterol lowering responses have been noted.

Davis et al[4] studied 239 adult white patients of both sexes ages 30-65. They used an initial dose of 8 mg. per day and succeeded in lowering the blood cholesterol levels on an average of 105 mg. per cent within eight weeks. Their results were adequately controlled with triodothyronine, nicotinic acid, estrogens, progesterones and placebos. They observed no electrocardiographic changes in 100 patients who had been on the D-thyroxine for over three months. Untoward reactions were not serious such as angina of effort or extreme metabolic effects and their overall incidence was only 2.5 per cent, a noteworthy observation.

Regardless of the reservations one may have as to the etiological importance of hyperlipemia per se, nevertheless, there is a relationship at least statistically between hypercholesteremia and furthering an extant atherosclerosis, and any drug capable of minimizing a metabolic defect deserves careful consideration. If the use of the drug is based on sound physiologic principles, if it has demonstrated its effectiveness by controlled clinical trial carried out by trained investigators over a sufficiently long period of time; if there has been established freedom from harmful reactions both immediate and remote, then it is worthy of use for the condition for which it is intended. Davis et al have shown that D Thyroxine meets all the above criteria.

L.H.N.

REFERENCES

1. Biörck, G.: Some fundamental problems in coronary heart disease. Acta. Med. Scandinav., 168:245, 1960.
2. Ahrens, E. H., Jr.: Nutritional factors and serum lipid levels. Am. J. Med., 23:928, 1957.
3. Report of the Ad Hoc Committee on Dietary Fat and Atherosclerosis of the American Heart Association. Dietary Fat and Its Relation to Heart Attacks and Strokes. JAMA, 175:389, 1961.
4. Davis, O. F., Beck, C., Bergal, M., Sloan, N. and Levine, A. J.: Some observations on the relationships between atherosclerosis, hyperlipemia and D-thyroxine. Am. Ht. Jr., 64.7, 1962.

The Role Of The Spleen In Immunologic Memory

Antibodies are proteins, therefore, they must be synthesized by certain cells. The synthesis of many antibodies follows a challenge by a particular antigen. It follows that there must be certain cells in the body which have the property of forming specific antibodies to specific organisms. Where are these cells located? Once recovery from an infection takes place how does the body recognize a previous challenge by the same organism or agent, so that it is able to meet it with increased effectiveness? Such "immunologic memory" is created whenever a person recovers from an infection or is vaccinated against typhoid and other similar organisms. How does the body do this? To establish a model system to investigate this problem, it was first necessary to find an organ in which antibody formation is believed to occur. Much evidence has accumulated since 1915 when Hektoen[1] after removal of many organs produced evidence that it was removal of the spleen which depressed production of antibodies in both the rat and the dog. The swollen spleen that follows acute infections and which is referred to as acute splenic tumor was extensively studied by Rich, Lewis, and Wintrobe in 1939[2] for the cellular characteristics. Thus there gradually developed the idea that the spleen was an organ where immunologic responses took place and it was possible to set up a simple model system for the study of antibody formation as described by Gunderson et al.[3]

A single intravenous injection of a suitable relatively non-toxic particulate antigen such as sheep erythrocytes, swiftly localizes in the spleen and this makes it possible to study the cell sequences in relation to a well defined time of antigenic stimulation. This is not true when one studies the slowly stimulated lymph node in response to a subcutaneous injection of antigen, nor is it true for the response of the spleen to a more or less continuously circulating soluble antigen such as bovine albumen. However, after a single swift antigen stimulation of the spleen, there is a remarkably reproducible set of cellular phenomena. There occurs a sudden burst of mitosis in the reticular cells of the red pulp of the spleen apparently not involving the cells which phagocytosed most of the antigen. This active mitosis reaches its peak at about seventy-two hours and continues to ninety-six hours when the spleen reaches its maximum weight. The cells derived from these mitoses have many of the characteristics of cells which fabricate abundant protein. Their cytoplasm is rich in ribonucleic acid and they quickly shed or excrete this RNA material into the surrounding splenic sinuses. At the same time as this happens, the circulating antibody concentration in the body reaches its peak—at about six days. As the cells have shed their antibody, they leave the spleen which then shrinks and returns to its normal resting appearance and size with the exception that there is a very slight increase in the number of mature plasma cells. The recently proliferated cells which disappear from the spleen probably enter the circulation as lymphocytes.

We have therefore, a phenomenon of large reticular cells in the spleen, maturing and proliferating, following antigenic stimulation, into small dark migrating cells resembling lymphocytes. Heretofore, the relation between the lymphocytic series of cells and tubercular hypersensitivity, transplantation immunity, the phenomenon of allergic thyroiditis and encephalitis has been well recognized. What has always puzzled immunologists was the relation between the cells and those that were stimulated by the antigen. In fact for a long time the plasma cell was considered the main product of an antigenic stimulus and so it was difficult to include the lymphocyte in a logical cell sequence relating to antibody formation. Now we know that the main reason that few plasma cells accumulate following a single antigenic stimulation is not that few cells respond to this stimulation, but rather that most antibody forming cells mature into lymphocytes after their stimulation and that they migrate throughout the body. In the body they represent the "prepared" cells which can then respond more quickly to a second contact with the same antigen.

From Gunderson's work it becomes apparent that both the plasma cell and the small round cell are produced in the spleen by the cytological changes following antigen injections. The small round cells of the peripheral blood usually called lymphocytes are produced in the germinal centers of the spleen contain antibodies and are intimately related to antibody synthesis. They may become localized in germinal centers elsewhere and can facilitate a follicular reaction to a second exposure to an antigen. They may be the cells which continue to multiply and recirculate following continuous or multiple antigenic stimulation and thus form widely distributed clones of cells having the ability to react quickly upon the recontact with the same antigen.

We are now in a position to say that the spleen is intimately related to formation of antibodies against particulate antigen, that it is the site of proliferation of lymphocytes capable of "recognizing" a previous challenge and reacting to it promptly and effectively. The lymphocyte may now be looked upon as a "messenger" or memory cell, sent out by the spleen to remember and react to antigenic challenges.

L.H.N.

REFERENCES

1. Hektoen, L. and Curtis, H. R.: Effect on antibody production of removal of various organs. J. Infect. Dis. 17:409, 1915.

2. Rich, A. R., Lewis, M. R., and Wintrobe, M. M.: Activity of lymphocyte in body's reaction to foreign protein as established by identification of acute splenic tumor cell. Bull. Johns Hopkins Hosp. 65:311. 1939.

3. Gunderson, C. H., Juras, D., LaVia, M. F., and Wissler, R. W.: Antibody formation in the rat spleen. JAMA 180:1038, 1962.

Roughage And Bowel Habits

Foods with cellulose roughage not lost in digestion increase the bulk of the intestinal contents. This bulk in itself favors normal bowel onward movement. In addition to the bulk factor, many forms of roughage are scratchy or mildly stimulating to the colon wall. This stimulation increases muscular activity and together with the bulk factor tends to prevent stagnation or dietary constipation caused solely by insufficient roughage. The relative laxative value of foods may be roughly estimated from their crude fiber contents. Wheat brans, whole grain cereals, vegetables and fruits, especially those with skins or seeds are excellent sources of roughage. It is well known, however, that certain fruits such as figs and prunes have specific laxative effect in addition to that produced by their fiber content.

Constipation may be due to causes other than those of dietary origin. When regular ingestion of foods providing considerable roughage does not relieve constipation it is important to consult a physician.

On the other hand, people with extra sensitive bowel walls may find foods containing much roughage too irritating. These people do well on low fiber content diets, avoiding whole wheat, bran, seeds, and skins. The indigestable cellulose of fruits and vegetables is generally less irritative than bran and well tolerated by these bowels. With most commercially prepared white bread "reinforced," there is no need to fear vitamin deficiency by avoiding whole wheat, when necessary.

This article prepared at the request of and approved by the Sub-Committee on Nutrition of the Committee on Public Health of the Connecticut State Medical Society.

THE PRESIDENT'S PAGE

A LARGE majority of physicians in the United States oppose socialized medicine under governmental control. A few physicians want governmental control of medical practice and some physicians are indifferent. Sweden, Denmark, Belgium, New Zealand and Britain have governmental control of medicine. The basic facts of this problem are that they involve the physicians, the people, the effect on medicare and the progress of medicine.

When New Zealand began governmental control of medicine many physicians left their country to practice in South Africa. Britain experienced an emigration of many physicians to other countries and most recently the reactions of the physicians in Saskatchewan bring the problem close to our doorstep. Physicians living and working under socialistic governmental control of medicine lose much of their individualism, their initiative, and their ambition. They treat patients, not persons. The doctor-patient relationship and the human side of medicine gradually fade. The physicians working for a salary lower their status to that of a working man or laborer. They are stabilized to that position both physically and financially. Consequently we see strikes by doctors. Strikes are debasing to the medical profession and should never be given an opportunity to develop such as are taking place in Rome and Austria today. The loss of individualism, the small financial return, and the atmosphere of compulsion breed discontent and poor medicare. Physicians cannot adequately diagnose and treat sixty patients in an afternoon as reported in British writings.

Under socialized medicine the lay public are led to believe that they are receiving medicare at a reduced fee. Many items such as drugs, glasses, dentures, surgical operations, deliveries, etc., are free or obtained at a low level fee. Patients wait for hours to be seen in doctors' offices or they are seen the next day or the next week. Interval operations are delayed weeks, months, and in some cases, years. It is amazing how people in some of these countries become accustomed to waiting for medical treatments and how little they care about the physician and his capabilities. The choice of a physician disappears in the hospital except in a few privately owned institutions. It is astounding to us in America that patients in the socialized countries do not know who performed their surgery nor do they care. This may explain why these countries complain that the "financial angels" do not come their way to make it possible for the doctors to build new hospitals and do research.

The fact that physicians from every country in the world are coming to the United States for study and research indicates that our medicine is superior. Let us add the fact that the status of health of the people in the United States is the highest in any nation in the world. The well-planned medical program, the organized research, the new public health projects, and the building of new hospitals indicate that private initiative, freedom of voluntary ambitions without compulsion produce a medical program superior to that found in countries where medicine is controlled by the government. Physicians in the United States are anxious to cooperate with our government but do not wish to be compelled to practice medicine in a way which will be detrimental to themselves and to the public as well.

CLYDE L. DEMING, M.D.

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Director of Public Relations

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Josephine P. Lindquist
Assistant to General Manager

CALL

SEMI-ANNUAL MEETING OF THE HOUSE OF DELEGATES

The 1962 Semi-Annual Meeting of the House of Delegates will be held at the New Haven Medical Association Library, 364 Whitney Avenue, New Haven, at 2:00 o'clock in the afternoon of Tuesday, December 4th

Clyde L. Deming, President
Orvan W. Hess, Secretary
William R. Richards, General Manager

INTRODUCTION OF RESOLUTIONS

Article V, Section 12, Par. 3 of the Bylaws of the Society provides that:

All resolutions to be considered as regular business at any regular meeting of the House of Delegates must be in the hands of the Speaker not later than seventy-two hours before the opening of that meeting. All resolutions and recommendations published in the official agenda distributed to the members of the House prior to the meeting at which action is to be taken shall be considered as regular business. Resolutions presented later than seventy-two hours before the opening of a meeting will be referred for consideration as regular business by the House only when they are presented by the Council or accepted for consideration by majority vote of the delegates present. Any resolution which does not qualify in accordance with the aforesaid provisions for consideration as regular business may be accepted for action by a majority vote of the delegates present and, if so accepted, shall be referred at once by the Speaker to a reference committee. Any such reference committee shall consider resolutions referred to it and shall report, with recommendations to the House before adjournment of the meeting

Proposed Amendments To The Bylaws

Four proposed amendments to the Bylaws were presented to the House of Delegates on May 2, 1962 and were tabled for consideration and action at the next regular meeting of the House of Delegates.

In accordance with the Bylaws, these amendments will be published in Connecticut Medicine, "on one or more occasions prior to the next meeting . . . at which meeting the amendments shall be taken off the table and acted upon by the House of Delegates."

Introduced by the Council:

Article V, Section 2 of the Bylaws be amended by the addition of a new subsection (c), which shall follow immediately after present subsection (b), and shall read: "ALL PAST PRESIDENTS OF THE SOCIETY, WHO SHALL BE EX-OFFICIO MEMBERS OF THE HOUSE OF DELEGATES, WITHOUT THE PRIVILEGE OF VOTING."

Introduced by the Litchfield County Medical Association:

Article VII, Section 1, Paragraph 7 of the Bylaws be deleted and substituted therefor by the following: "THE CHAIRMAN OF THE COUNCIL AND THE COUNCILOR FROM EACH COUNTY SHALL BE THE NOMINATING COMMITTEE OF THE SOCIETY. THE CHAIRMAN OF THE COUNCIL SHALL BE THE CHAIRMAN OF THE COMMITTEE. THE COMMITTEE, AFTER CONSULTATION AND ADVISING WITH THE ENTIRE COUNCIL SHALL REPORT ITS NOMINATIONS TO THE FIRST SESSION OF EACH ANNUAL MEETING OF THE HOUSE OF DELEGATES. FOLLOWING THIS REPORT, NOMINATIONS MAY BE MADE FROM THE FLOOR."

Article VII, Section 2 of the Bylaws be amended by the deletion of the clause, AND ONE ADDITIONAL ASSOCIATE COUNCILOR FROM EACH COMPONENT ASSOCIATION HAVING OVER 750 MEMBERS."

Article VII, Section 2 of the Bylaws be amended by the addition of the following sentence after the term Councilor-at-Large, "IN THE EVENT THAT BOTH THE COUNCILOR AND THE ASSOCIATE COUNCILOR(S) FROM A COUNTY ASSOCIATION CANNOT BE PRESENT AT A COUNCIL MEETING, THE PRESIDENT OF THE COUNTY ASSOCIATION MAY APPOINT A SUBSTITUTE COUNCILOR."

THE RIGHT TO KNOW

Over the years, much has been said and written in praise of our modern-day communications media, and the fine job they are doing to keep the public informed on the happenings and issues of the times. The exercise of traditional American freedom of the press has certainly done much to enable the ordinary citizen to understand better some of what is going on in the world about him—both in his own local bailiwick and in the far corners of the globe.

From time to time, however, it seems to us that some of those who are charged with reporting the news are prone to become a little subjective about their work and tend to tell us what happened here and there "as they saw it", rather than as a matter of unembellished fact. As a consequence, the listener or reader is often not left to draw his *own* conclusions about what has been said or done on the reporter's beat, but is asked to accept a third party's interpretation of the meaning of these events.

For example, during the televised national political conventions of 1960, a prominent and articulate member of Congress delivered what to millions of people was a particularly inspiring "keynote" speech—partisan, yes, but nonetheless carrying a potentially valuable message to every American in much of its content. Now it is not for us to say which listeners should have found the address to their liking and which should not. That's something each of us had to decide for himself. But when one TV reporter turned to the other, as the camera panned away from the rostrum, and said enthusiastically: "Say, that was an extremely fine speech, wasn't it?", and his partner's patently cynical reply was: "Yeah, but you know how much those keynote speeches *really* mean!", it seemed to us that ordinary good taste and, especially, true lack of bias in news coverage had not been very well sustained. The orator's words — whatever their value—spoke for themselves; they required no comment by "experts" to either demean or praise their message.

Similarly, in the contemporary Connecticut press, on some occasions so-called "staff reporters" seem to be taking unto themselves a most questionable privilege—that of giving the news they write up a touch of personal evaluation. Thus, one ventured the opinion that the recent FIVE AGENCY STATEMENT on the accomplishments of our voluntary system of health care and its financing "appeared to be self-patting," and another asserted that neither of the two candidates participating in a political debate "said much of anything of interest to the prospective voter."

Now we recognize that those who editorialize and put together syndicated columns have a right to interpret national and international events in any way they see fit. Overtly opinionated and partisan writings serve an admirable purpose, whether we agree with them or not. But the point we are trying to make here is that, when it comes to bringing us just "the news," aren't we entitled to know which reports are based pretty much on facts and which are interlarded with or altered by the private views of the reporter? Seems to us we are.

W. R. R.

COUNCIL MINUTES

Thursday, September 27, 1962

A meeting of the Council was called to order by the Chairman, Ralph L. Gilman, at 2:00 P.M. on Thursday, September 27, 1962. Present in addition to the Chairman were: Drs. Deming, Pitock, Hess, M. Caplan, Wilson, Bradley, Grendon, Grant, Davis, Hughes, Chartier, Dean, Gorman, Sundquist, Gevalt, Egan, Abbot, Beardsley. Also present: Mrs. Lindquist, Mr. Burch and Dr. Richards. Absent were: Drs. Goldberg, Cullen, Gardner, Scully, O'Connor, Cornwell, Murray, Jr., Martin, H. Caplan, Phillips, Hastings.

APPROVAL OF MINUTES. It was VOTED to approve the minutes of the meeting of August 29, 1962, as printed.

PANEL ON PHYSICIAN-HOSPITAL MEDIATION. It was VOTED to appoint Joseph B. Cherry, Danbury, as a Fairfield County Association representative on this Mediation Panel, replacing William M. Stahl, Jr., Danbury, resigned.

COMMITTEE ON PUBLIC HEALTH

a. It was VOTED to appoint an Advisory Committee on Cardiovascular Diseases to the State Department of Health. The members recommended by the Committee on Public Health and those added by the Council are listed as follows: Harold E. Speight, Middletown, Chairman; Albert L. Larson, Hartford; Joseph J. Smith, Bridgeport; John M. Hill, Hartford; Kenneth F. Brandon, Hartford; Joseph P. Shea, Bridgeport; John Beeble, Waterbury; William B. A. Bentley, Waterbury; William H. Resnik, Stamford; Howard Levine, New Britain; Benedict R. Harris, New Haven; Morris J. Seide, Hartford; Henry Caplan, Meriden.
b. It was VOTED to approve the expenditure of $375 out of the P.H. Committee's budget to reimburse Dr. Osborn, Chairman, for his attendance at the meeting of the American Public Health Association at Miami Beach, Fla., October 15-19, 1962.
c. It was VOTED to approve the Committee's recommendation of approval for a Sabin poliomyelitis immunization program, subject to changes recommended by the State Department of Health.
d. It was VOTED to adopt the Committee's recommendation of approval of an influenza vaccine immunization program, advanced by the Surgeon General's Advisory Committee on Influenza, subject to changes recommended by the State Department of Health.

SEMI-ANNUAL MEETING OF HOUSE OF DELEGATES. It was VOTED to hold the semi-annual meeting of the House of Delegates at the New Haven Medical Association Library, New Haven, at 2:00 P.M. on Tuesday, December 4, 1962. Jachin B. Davis, Councilor from New Haven County, confirmed the willingness of his Association to act as host for the meeting.

1963 BUDGET SUBCOMMITTEE. It was VOTED to direct the Chairman to appoint a Budget Subcommittee to prepare and submit to the Council a budget for 1963, such budget, when approved by the Council, to be presented to the House of Delegates at the semi-annual meeting in December. The Chairman appointed the Subcommittee as follows: Isadore S. Goldberg, Chairman; Alfred B. Sundquist; Michael A. Dean; Frank K. Abbot; Richard F. Grant.

COMMITTEE AND DIVISIONAL BOARD RESIGNATIONS. It was VOTED to accept, with regret, the resignation of Denis S. O'Connor, New Haven, from the following posts: Member of the Committee on Rehabilitation; Chairman of the Committee on Publications; Chairman of the Divisional Board on Publications. Dr. O'Connor will remain a member of the Committee on Publications. It was further VOTED to appoint Max G. Carter, New Haven, as Chairman of the Committee on Publications (and automatically a member of the Divisional Board) and Louis H. Nahum, New Haven, as Chairman of the Divisional Board on Publications, each replacing Dr. O'Connor, resigned, in these posts.

COMMUNICATION. The Council accepted, with appreciation, the following message from Mrs.Lillie E. Woods, President of the American Association of Medical Assistants: "I hope you will convey our deepest thanks and appreciation to the members and officers of your Society and to your county medical association for their support and interest." The Council and several county medical associations have given sponsorship and financial support to the formation of county and statewide medical assistants' associations in Connecticut.

AMA CLINICAL MEETING. The Council received, as information, notice that the AMA Clinical Meeting will be held in Los Angeles, California, November 24-28, 1962.

COMMITTEE ON STATE LEGISLATION. It was VOTED to approve a recommendation of the Committee on State Legislation that Averill A. Liebow, New Haven, be appointed Chairman of an Ad Hoc Committee an Animal Research and that Dr. Liebow suggest to the Council for appointment such other members as he desires. The purpose of the Ad Hoc Committee is to effectively organize and focus support for sound animal research legislation among the physicians of the state. Since the Committee will work cooperatively with the Committee on State Legislation, it was VOTED to add a member of the legislative committee to the ad hoc group when Dr. Liebow submits his recommendations.

CONNECTICUT CHRONIC AND CONVALESCENT HOSPITAL ASSOCIATION. Upon request of the CCHA, it was VOTED to authorize Kurt Pelz, Wallingford, to represent the Society at the Convention of that Association on November 2-3, 1962, and to participate in a panel discussion of: "Medical Records As They Effect Convalescent Hospitals".

AUTOMOBILE FOR THE SOCIETY. As between buying or leasing a car for use of the Society's staff, it was VOTED to purchase a suitable vehicle. It was further VOTED that, under the direction of the Committee on Building Management, the Society buy a car at a maximum net expenditure of $2700, the selection of model and make to be left to the Committee.

RESOLUTION RE COMMITTEE AND STAFF STRUCTURE OF CSMS. Introduced by Orvan W. Hess, Secretary, it was VOTED to adopt a resolution as follows:

"Whereas: The responsibilities of the Connecticut State Medical Society to its members have increased markedly in recent years and continue to increase, and

Whereas: The committee and staff structure of the Society has remained relatively static during these years, therefore be it

Resolved: That the Council of the Connecticut State Medical Society, through whatever medium it deems best, immediately direct its attention to an evaluation of the adequacy of the Society's existing committee and staff structure in relation to the increased and increasing responsibilities of the Society to its members."

It was further VOTED to appoint Dr. Hess Chairman of a special ad hoc committee to implement the intent of this resolution, and to authorize Dr. Hess to select members of his committee to include among others, the general officers of the Society and the General Manager as consultant.

CONNECTICUT CONGRESS ON MEDICAL QUACKERY. Notice was made that the Congress on Medical Quackery had been held, with outstanding success, on September 26th and it was VOTED to commend Max Caplan, Meriden, and the members of his planning committee on the excellence of their initiative and enterprise in carrying this undertaking to completion. It was further VOTED that Dr. Caplan be authorized to cooperate with Commissioner Frassinelli of the Department of Consumer Protection in developing a continuing information program on medical quackery to be transmitted with the advice and approval of its Editor, Dr. Nahum, to members of the Society through the medium of CONNECTICUT MEDICINE.

FILM: "YOUR HEALTH—YOUR CHOICE". The Council viewed a half-hour film titled: "Your Health-Your Choice", produced by the AMA, and featuring an interview with Dr. Edward R. Annis, President-elect of the American Medical Association. It was announced that several copies of the film had been obtained and that showings could be arranged to interested groups through Mr. Burch, Public Relations Director.

DATE OF NEXT MEETING. The date of the next meeting was set for Wednesday, October 24, 1962.

Benefit Added To Society Overhead Expense Policy

The Society has received a Rider from the Continental Casualty Company, adding the Waiver of Premium benefit to the Society-sponsored Overhead Expense Policy. The effect of this Rider is to add, without additional charge, a Waiver of Premium clause to the effect that after benefits have been payable for six months, the Company will waive the payment of any premium due as long as the period of disability continues.

This Rider became effective September 15, 1962. Group Insurers, Inc., administrators of the plan, states that certificates to this effect will be mailed to all members of the Society who participate in the program.

PLACEMENT WANTED

The Society's Placement Service is in receipt of the following:

M. F. Nezhad, age 33—M.D. Iran Medical School, Teheran, 1956, internship Hospital for Joint Diseases, N. Y., 1957-58. Specialty Internal Medicine and Gastroenterology.

Obstetrician-Gynecologist, board-eligible, University-trained, married, age 34, military completed, Diplomate National Boards, Connecticut License, two years private practice, desires relocation to Connecticut in partnership or association.

Ophthalmologist, board-eligible, age 29, M.D. New York University-Bellevue College of Medicine, 1957.

Internist, board-eligible, one year fellowship Cardiology. Military service completed. Seeks association with internist group, or other position.

PLACEMENT OPPORTUNITIES

Wanted—Physician in student health work.

Wanted—Physician for industrial work in New Haven County and Hartford County.

ANYONE INTERESTED IN THE ABOVE, IS ASKED TO COMMUNICATE WITH THE GENERAL MANAGER'S OFFICE, 160 ST. RONAN STREET, NEW HAVEN.

1962 MEETINGS

November 6-7-8—New England Postgraduate Assembly, Statler Hilton, Boston.

November 25-28—Clinical Meeting, American Medical Association, Los Angeles.

December 4—Semi-Annual Meeting, House of Delegates of the Connecticut State Medical Society, to be held at New Haven Medical Library, 362 Whitney Avenue, New Haven, at 2:00 P.M.

1963 MEETINGS

April 30-May 1-2—171st Annual Meeting, Connecticut State Medical Society, Statler-Hilton Hotel, Hartford.

New Members

FAIRFIELD COUNTY

Joseph L. Belsky, Ridgefield
Vincent M. Capodilupo, Bridgeport
Harold M. Dolberg, Westport
Lloyd C. Fisher, Stamford
Anthony E. Giangrasso, Trumbull
MacEllis K. Glass, Bridgeport
George B. Johnson, Jr., Bridgeport
Ralph Katz, Stamford
John J. Lawrence, Bridgeport
Charles W. Mauks, Danbury
Ruben Mendoza, Norwalk
Thomas J. O'Neil, Redding
Robert H. Orth, Stamford
Gilbert R. Panzer, Weston
Marjorie B. Patterson, Old Greenwich
Arnold D. Pearlstone, Fairfield
Timothy J. Regan, Darien
Daniel G. Salvio, Bridgeport
Raoul A. Schmiedeck, Westport
Robert B. Scott, Danbury
John H. Small, Bridgeport
Richard A. Smeraldi, Stamford
Richard A. Stamm, Westport
Stephen B. Sulavik, Stamford
William M. Sullivan, Norwalk

HARTFORD COUNTY

Rodman J. Bendett, Hartford
Henry T. Bonney, Hartford
Timothy F. Brewer, Jr., Hartford
Bernard B. Cohen, Hartford
Robert J. Cronin, Hartford
Nasser D. David, West Hartford
Martin Dinep, New Britain
Kevin V. Dowling, Hartford
Mohammad Erami, Bristol
Ronald S. Fishman, Hartford
James R. Fitzgerald, Hartford
Herman H. Glassman, Hartford
Arthur T. Gorman, Hartford
Francis M. Hall, Jr., Hartford
James C. F. Healey, Hartford
Crawford Hull, Hartford
Sebastian R. Italia, Hartford
Gerald O. F. Jensen, Bristol
Robert D. Langmann, Farmington
David E. Lipton, Hartford
John H. McCooey, Hartford
Mather Neill, Hartford
Clair Prindle, Hartford
Oscar Reiss, Bristol
Sidney M. Richman, Hartford
Eugene S. Rotatori, Hartford
Horace Sarter, West Hartford
Anthony J. Sattilaro, Hartford
Robert Sirkin, New Britain
John J. Sziklas, Bloomfield
Josephine A. Tadeo-Goldman, Hartford
Richard J. Thomas, New Britain
Wallace W. Turner, Newington
William M. Velie, Windsor
William J. Waskowitz, New Britain
May Weinstein, West Hartford
David S. Wilcox, Hartford
Robert W. Woodhouse, Hartford
Keith D. Woolpert, Manchester
Andrew F. Zembko, New Britain
Alice J. Turek, Hartford

LITCHFIELD COUNTY

John W. Gallup, Sharon
Richard T. Kramer, Torrington
William B. Rich, Torrington
Frank R. Vanoni, Torrington

NEW LONDON COUNTY

Frederick R. Behringer, New London
Martin L. Karno, New London
Peter J. Kropp, Norwich
Patrick H. McDonagh, Norwich

Propose National Program For M.D.'s Continuing Education

A joint committee established through the American Medical Association leadership recently proposed the creation of a national "university without walls" to offer physicians comprehensive, postgraduate education, emphasizing new developments in the science of medicine.

The proposal for this national organization was announced in a report of the Joint Study Committee in Continuing Medical Education and followed nine months of study and research.

The committee said that the proposed organization "should have the function and independence of a university, but need not have the physical plant, resident faculty and resident student body which a university ordinarily has."

Specific functions were listed as teaching, coordination, research and development in continuing medical education.

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ACCIDENT AND HEALTH PLAN

In addition to the above, members up to age 40 may now purchase their Accident and Health protection at a 25% reduction in cost.

Through its continued official sponsorship of our Group Plans, The Connecticut State Medical Society has once again made it possible to offer broadened coverage under these two time-tested policies to members of the Society. If you are not now enrolled, do not turn your back on old friends who have served Connecticut physicians for over a quarter of a century. If a sufficient number of new applications are submitted for the Major Medical Expense Plan, all policies will be issued regardless of past medical history. For full information write or phone.

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Special Article

Importance Of Animal Research And The Experimental Laboratory For Progress In Surgery

OWEN H. WANGENSTEEN, M.D.
Minneapolis, Minnesota

RESEARCH, research, and more research, those stirring words I have frequently heard from the lips of Paul Dudley White, distinguished American cardiologist, whether speaking to the Heart Council or to large or small groups of physicians interested in spurring developments in the broader aspects of medicine.

The complicated surgical procedures of intracardiac surgery have made it mandatory that every surgeon aspiring to perform such procedures have the opportunity to gain orientation with the many intricacies involved and prove his technical skill in the experimental laboratory before addressing himself to the problems in man.

For long years, the surgical wards have been the chief training grounds for surgeons, where they have perfected their techniques by serving an apprenticeship to more experienced surgeons. The weakness of this anecdotal scheme of training is coming to be appreciated by everyone interested in the furtherance of surgical training and education. In the more progressive clinics throughout our land, pure clinical orientation is gradually being supplemented generously by greater emphasis on the importance of the experimental laboratory in the training of surgeons.

A byword in future guide lines may well be that after a period of exposure of a year or more in an experimental surgical laboratory, a young surgeon has made enough progress, in improving his technical skill and sharpening his mental processes by conflict with unsettled problems, to qualify for operating upon man. The time probably is not far off, I would like to believe, when proficiency in the animal research laboratory will be looked upon as a pre-requisite to the privilege of operating upon man. The best surgeons trained in this clinic are those who spent one or two years or more in the disciplines of the experimental laboratory during their climb up the academic ladder.[1]

Obviously, the expenditure of a year or more in the experimental laboratory elongates the period of training. However, I have seen little if any suggestion that the primary focus of attention of the surgical trainee is upon the time it takes to complete training. He is justifiably impatient with the token stipend conventionally available. The serf and slave-labor emolument of surgical house officers too must disappear to be replaced by realistic and reasonable remuneration. There is no evidence that society has benefited by undervaluing and underpaying constituent components of the social order for their services. My experience has been if young House Officers receive a living wage to support their growing families, the time element required to obtain adequate training dwindles in importance.

There are probably few areas in medicine where progress has been made in which animal experiments have not played a significant role. Even so, obstruction to animal dissection is still prevalent in many parts of our country. The American public has come to know how important research is for progress in medicine. The recent great success of intracardiac surgery, made possible through research and exposure of cardiac surgical teams in experimental laboratories to the many intricacies of the surgical problems, has served to inform and emphasize to the public the prime importance of the experimental laboratory for the success of these endeavors. These accomplishments and many others are responsible for the growing enthusiasm of the

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DR. OWEN H. WANGENSTEEN is Professor and Chief of Surgery, University of Minnesota Medical School, Minneapolis, Minnesota.

public for research and has served to dampen the ardor of those vocal minorities opposing research. With sympathetic help from the public such irrational groups, exhibiting no suggestion of orientation and with no concern over the injury their contentions would inflict upon the public, should find themselves struggling on the ropes.

In a public hearing in our area two decades ago, when the matter of obtaining dogs from the municipal pound, operated jointly by the City of Minneapolis and the self-styled Animal Rescue League came up for discussion, one of the ladies representing that group lavished a terrific tongue lashing upon some of us seeking release of dogs, about to be deprived of their lives at the pound, to the medical school for purposes of research. One of their most voluble speakers who vigorously opposed the suggestion was festooned with an ostrich plume in her hat; she wore leather-soled shoes, and admitted serving her husband meat, though she herself affected to be a vegetarian. Such are the inconsistencies of many of these irrational people.

The fury of the public has been awakened to such obstructive tactics. In consequence, it is becoming easier for research-minded groups to get a fair and sympathetic hearing now than it was a decade or more ago. A law authorizing the release of impounded dogs to legalized agencies engaged in the care of animals and research became a part of the Minnesota statutes in 1949, placing responsibility for supervision and operation of the act under the Minnesota State Livestock Sanitary Board.[2]

Wisconsin, South Dakota, Oklahoma, Massachusetts, Ohio and Iowa have enacted similar laws.[3] In many communities local laws aiding animal experimentation have been adopted. The emergence of veterinary colleges in recent years, from an interest delimited solely to professional training, to the assumption of an important role in fostering a program of spirited research in animal diseases will certainly come to have a telling effect upon overcoming resistance to animal experimentation.

A Committee of the Massachusetts Medical Society, of which J. C. Warren of Boston was a member, reporting to its membership on December 27, 1829, recommended enactment of legislation legalizing anatomical dissection. Said the report in part, "The public must choose between two things—the dissection of the dead, or the mutilation of the living."[4] The force of this argument succeeded in the passage of the first Anatomical Act in Massachusetts amongst English speaking countries of the World in 1831. Burking came into Scotland and England in the third decade of the nineteenth century when anatomical schools flourished through connivance of grave robbers and "resurrection men." The atrocious and heinous activities of the Burkers were directly responsible for the Warburton Anatomy Act which legalized dissection of human bodies after death in Great Britain and Ireland in 1832. Connecticut provided similar legislation in 1833.

The time is long overdue for provision of similar legislation at the state level for animal experimentation. Today, an informed public's sympathy is definitely on the side of groups dedicated to the task of utilizing all the advantages of research in the resolution of the problems of the ill. Without research, medicine stagnates. The important strides made in greater medicine by accelerated investigation since World War II has gained loyal supporters for research who will never desert this cause, which affects the lives and fortunes of all of us so directly.

More than 2,000 years ago, Plato remarked: "Perhaps if we go forward in the search, we may stumble upon the thing we are looking for, but if we stay where we are, nothing will come to light." Greater medicine and society must combine their efforts to spur the growth and progress of knowledge which can only come through research.

REFERENCES

1. The Minnesota Experience in Surgical Graduate Education. Surgery, Vol. 48, No. 5, pp. 984-985, November, 1960.

2. Chapter 195 of the Session of the Laws of the 1949 Minnesota Legislature To Promote Scientific Research and Instruction in Animal and Public Health by Making Available to Educational and Scientific Institutions, Unclaimed and Unredeemed Animals Impounded by Public Authority in Animal Pounds; To Provide Licenses Therefore and Penalties for Violations Thereof.

3. Personal Communication from Mr. R. A. Rohweder, Executive Secretary, National Society for Medical Research, August 22, 1962.

4. Address to the Community of the Necessity of Legalizing the Study of Anatomy, By order of the Massachusetts Medical Society, Boston, Mass., 1829, p. 16.

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Clinical Medicine

Heart Size And Heart Failure

LOUIS H. NAHUM
New Haven

THE heart in congestive failure maintains its blood pressure very well, yet it cannot maintain an adequate cardiac output and functions at a low mechanical efficiency. As a result, a price is paid for not perfusing the peripheral organs adequately one of which is retention of salt and water by the kidney, another congestion of the heart and of the venous system. Such changes are primarily a consequence of two things, (1) the increase in the size and shape of the heart, (2) a change in the kinematic or the motion properties of the muscle units themselves.

At the present time, two theories have been proposed to explain the muscular disturbance of the failing heart. One is called "disorganization at the molecular level." It is postulated that action filaments slide inward between the myosin on excitation, and as the units move across each other through a finite distance shortening occurs. Thus the sliding filaments give movement and contraction to muscle. What happens if they are pulled too far apart? Huxley and Peachey[1] found that if they stretched this muscle unit from 1.5 μ to 3.5 μ representing the total length of the myosin and actin on both sides, then contraction no longer took place. They suggested therefore, that the defect in congestive heart failure was indeed what Starling called "overstretch." If enough sarcomeral units ultimately become over stretched then over-all motion potential must be lost. With an actual rupture of the contractile units, loss of shortening ability results. The ratio of the number of stretched to normal sarcomeres will determine the degree of contractibility possessed by the heart under such circumstances.

Pursuing further this first theory it is necessary to remember that shortening may be hampered not only by mechanical integrity of the sarcomeres or the contractile units, but by chemical changes. There also are disturbances in calcium binding. Adenosine triphosphatase activity which is essential to recovery of muscle after contraction is decreased in human congestive failure.[2] Chemical changes in the molecular weight of myosin occurs also. It is 225,000 in the normal canine heart but rises to 770,000 in the failing heart. Such a cross aggregation of the parallel myosin fibrils with one another in close physicochemical association would be expected to interfere with the ability of these muscle units to move.[3]

A second theory concerns "disorganization at the muscle bundle level." Professor Linzbach,[4] with phase microscopy, did not find stretched sarcomeres in heart failure as Huxley and Peachey did. And so he offered a theory of his own to explain what happens to the heart in heart failure. It is the large muscle fibers not the sarcomeres that tend to rearrange themselves by sliding over and in between each other. Initially thinning of the wall and broadening of its surface results from this difference in packing of the muscle bundles. This we would call dilatation. Hypertrophy of the individual fibers takes place if the load of the heart is chronic and unremitting. Thus the heart in chronic failure regains a normal to increased wall thickness around a much larger chamber but with every sarcomere precisely the same. The geometry of this heart has suffered some major alterations not at the molecular, but at the microscope level. If the usual myocardial spirals and muscle bands are exchanged for some other pathological arrangement one would expect that motion in the fiber architecture would be different. Some fibers would exert different and possibly inadequate lines of force and lead to disorganization of the contractile element.

When a heart gets bigger, what happens from the point of view of its geometry? Burch et al[5] have analyzed the physical conditions imposed on the phenomenon of contraction by virtue of the heart being an ellipsoid. The size of the heart affects ventricular pressure generated, stroke output, and myocardial energy needs. The pressure development

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depends on the force within the ventricular wall. The total tension on the inner surface requires a tangential force in the wall only one-quarter as great. As the cavity gets bigger much more wall force is needed to deliver a given intraventricular pressure. A larger cavity has an advantage in the heart expelling blood. Its size and individual fiber distance must change relatively less to expel the same amount of blood as would a smaller heart with a smaller cavity. If the fibers of the larger normal heart shorten through the same length as in the smaller heart, then it will put out a larger ejection rate of blood and therefore, stroke output. This is merely a restatement of Starling's law, in which Starling showed that increased initial volume leads to increased stroke volume. In the abnormal heart in which the fibers are not arranged normally and in which contractile force is impaired the response may not be anything like that seen in the normal heart.

What is especially important is the effect of increased cardiac size on cardiac energy needs. There is evidence in dogs and man[6] that acute cardiac dilatation, leads to an oxygen consumption in excess of that required to meet the increase in stroke output and the need of the hypertrophied muscle. In the normal heart, as contraction progresses, it becomes easier for this to take place because the cavity gets narrower so that the amount of energy that must be put into the squeezing process gets less and less. This enhances the efficiency of the heart also the shortening of the fibers of the heart and therefore ejection of blood. But the dilated heart does not decrease its size percentage wise and accordingly there is a greater cost of energy since more total forces are required to deliver the same pressure as in the normal heart. Although the dilated heart decreases little in size during contraction, it must build a pressure to the same degree as the normal heart and it does this slower than the normal and this can in itself seriously affect the expulsion of blood. In short, the consequences of having a large heart are that the contraction becomes more costly because the initial and systolic tensions of the heart are so much greater than that seen in the normal heart. In essence the big heart is robbed of its potential for contraction. If the work produced is low and the energy cost is high, then the efficiency of the heart is necessarily low, but as a secondary by-product of dilatation and not as a primary chemical abnormality except in a few rare cases.

Lack of Vitamin B through a block at acetylcoenzyme A (CoA) can result in interference with energy liberation and cause beri-beri heart failure. Part of the difficulty in thyrotoxic heart failure has also been attributed to a chemical defect in which there is uncoupling of oxidative phosphorylation, in that liberation of energy occurs but without successful "trapping" and storage of high energy phosphate. But these are rare examples of heart failure. In most causes of mechanical heart failure as with valvular disease, hypertension and coronary sclerosis, energy liberation and conservation are perfectly normal. The defect lies in the transformation of readily available chemical energy into useful mechanical work and this can be explained on the basis of cardiac enlargement, or a change in cardiac geometry. It is true that nutritional therapy is important in the patient with severe anorexia, combined with massive diuresis, for under such conditions thiamin may be lost in amounts sufficient to affect energy production. Although the role of potassium deficiency in altering cardiac metabolic function is as yet unknown, its wasting during diuresis does occur and should be avoided on general principle.

But of great importance in the therapy of heart failure is the matter of reduction in cardiac size. In fact the first point in prognosis as well as therapy is, how reversible is the dilation. If the heart can be made smaller, this obviously is to the patients advantage, for then energy could be diverted from increased tension in the ventricular wall into shortening, so that more blood can be delivered into the aorta on any given beat of the heart. The function of digitalis in this regard is well known. But from what has been discussed above a fundamental contribution to cardiac efficiency is also derived from diuresis. Diuresis is not just getting rid of edema and congestion and making the patient more comfortable. It is not just to obviate the secondary manifestations of congestive failure that diuresis is important. Its chief importance is derived from the decrease in heart size that follows diuresis. For it is this that increases cardiac efficiency, improves cardiac contractility and leads to a better utilization of energy.

REFERENCES

1. Huxley, A. F. and Peachey, L. D.: Maximum length for contraction of striated muscle. J. Physiol., 146: 55, 1959.

2. Alpert, H. R. and Gordon, M. S.: Alterations in myofibrillar adenosine triphosphate in human congestive heart failure. Circulation, 24: 876, 1961.

3. Olson, R. E.: Contractile proteins of heart muscle. Am. J. Med., 30: 692, 1961.

4. Linzbach, A. J.: Heart failure from the point of view of quantitative anatomy. Am. J. Cardiol., 5: 370, 1960.

5. Burch, G. E., Ray, C. T., and Cronvich, J. A.: Certain mechanical peculiarities of human cardiac pump in normal and diseased states. Circulation, 5: 504, 1952.

6. Gorlin, R.: Recent conceptual advances in congestive heart failure. J.A.M.A., 179: 441, 1962.

Communication from the Commitee on Medical Economics and Insurance

A query was asked of Aetna Casualty & Surety Company and Liberty Mutual Insurance Company regarding coverage for civil suits for assault and battery under malpractice policies. Pertinent excerpts from their replies follow:

"It is the position of our company that an alleged assault which is incidental to and connected with treatment or examination is covered. If the assault is a personal act on the part of the physician and is outside the reasonable scope of treatment, then we would take the position there is no coverage. It must be kept in mind that there could well be cases in which our final position as to coverage could only be determined after a trial of the issues because it would only be after such trial that the full facts would be known and it could be determined whether or not the doctor's acts were in fact incidental to and connected with the treatment of his patient. It must also be kept in mind that there is an exclusion for injury arising out of the performance of a criminal act. However, even though technically classifiable as an assault, we do not regard an allegation of operation without consent as an assault or criminal act and would provide coverage for such an allegation."

THE AETNA CASUALTY & SURETY CO.

"The coverage given by Liberty Mutual's Physicians' and Surgeons' Professional Liability Policy is restricted to the insured doctor's liability to pay damages "because of injury, sickness, disease or death caused by malpractice, error or mistake in rendering or failing to render professional services in the practice of the insured's profession. . . ." This undertaking is limited by exclusion (a), the pertinent part of which reads as follows:

This policy does not apply to injury arising out of the performance of a criminal act by any person. . . .

This exclusion is modified by a provision that it does not apply to the defense of suits unless the insured or another person for whose acts or omissions the insured is alleged to be legally responsible is convicted in a criminal prosecution based on those acts or omissions for which claim or suit is brought against the insured.

"Assault and battery" is, in every state, a criminal act. Hence, the answer to your question is that Liberty Mutual will defend a suit brought against you seeking damages because of an alleged assault and battery committed in the course of rendering professional services to a patient unless you or someone for whose acts you are responsible have been convicted in a criminal prosecution based on those acts causing the injury for which damages are sought. However, Liberty Mutual would not be liable, under its policy, to pay a judgment against you founded on the basis that the injury resulted from an assault and battery, whether or not there had been any criminal prosecution.

An exclusion of coverage for an insured's civil liability for damages for injury caused by the insured's criminal acts is not peculiar to professional liability policies. On the contrary, it is not intended that any liability policy give an insured protection against his civil liability for damages caused directly by his intentional criminal act. Liberty Mutual and other insurers writing professional liability coverage recognize that there are situations in which a doctor who has acted in good faith and has given his patient the proper treatment by professional standards may nevertheless find himself technically guilty of assault and battery. In such a case a doctor's claim for coverage under his professional liability policy will receive sympathetic consideration from his insurer. Each such case, however, must be handled in accordance with its own peculiar facts. Under the circumstances, it is submitted that a doctor must be alert to see that he does not give a patient any treatment or perform any operation without the patient's consent or with the consent of some person authorized to act for the patient and without making it clear to the patient or to such other person any possible harmful effects which might follow such treatment or operation."

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Around The State

Sabin Oral Poliomyelitis Vaccine Recommendations Of State Department Of Health For 1962-1963 Program

In line with the Surgeon General's most recent recommendations issued on September 15, 1962 the Connecticut State Department of Health recommends that immunization programs with Sabin oral poliomyelitis vaccine be conducted in the fall of 1962 in all the towns and cities of Connecticut in an effort to immunize as many children as possible against this disease. Everyone up to 18 years of age should receive all three types of vaccine. Those over 18 should receive Types I and II but should not receive Type III vaccine unless an epidemic occurs or they are traveling to hyperendemic areas. School and pre-school children must receive all three types of vaccine for complete protection.

While Type I vaccine programs were conducted in many towns and cities in the spring of 1962 some areas did not hold programs and in others only 60 per cent or less of the pre-school population was immunized. Therefore it is recommended that Type I programs be conducted between October 15 and October 31, 1962, in the towns and cities which have not had programs and that clean-up programs with Type I vaccine be conducted in the other towns. Type I vaccine should not be given at the same time as other strains.

An interval of 6 weeks or longer should then occur before other types of poliomyelitis vaccine are used. It is recommended that the next phase of the program be started not earlier than December 1st.

It is generally recommended that the three types of vaccine be administered sequentially, at intervals of six weeks or longer between doses. Since Type I poliovirus has in past years caused about 85 per cent of poliomyelitis cases Type I vaccine should ordinarily be used first. Type III vaccine is generally used next. However, should there be a shortage of vaccine, either Type II or Type III may be used for the second dose.

It is also feasible and practical to give Types II and III at the same time. Good immunity is obtained in this way. Types II and III should not be mixed together ahead of time, but may be put on the same lump of sugar or in the same spoon or cup just before it is administered.

Schedule A

	Vaccine Type	*Subsequent Interval*
1st dose	Monovalent Type I	6 weeks
2nd dose	Monovalent Type II	6 weeks
3rd dose	Monovalent Type II	---

Alternate Schedule B

	Vaccine Type	*Subsequent Interval*
1st dose	Monovalent Type I	6 weeks
2nd dose	Bivalent Type III and Type II	---

The interval may be as short as 4 weeks if vaccination is begun in the Spring or longer than 6 weeks if circumstances require.

New Haven County

John C. Mendillo, prominent in the medical profession here for 25 years, a member of the Yale Medical School staff and chief surgeon at Griffin Hospital, Derby, has moved to Fort Lauderdale, Florida.

Citing health reasons, Dr. Mendillo, who had an office at 255 Bradley Street, decided recently to transfer to the Florida community, where he has opened an office.

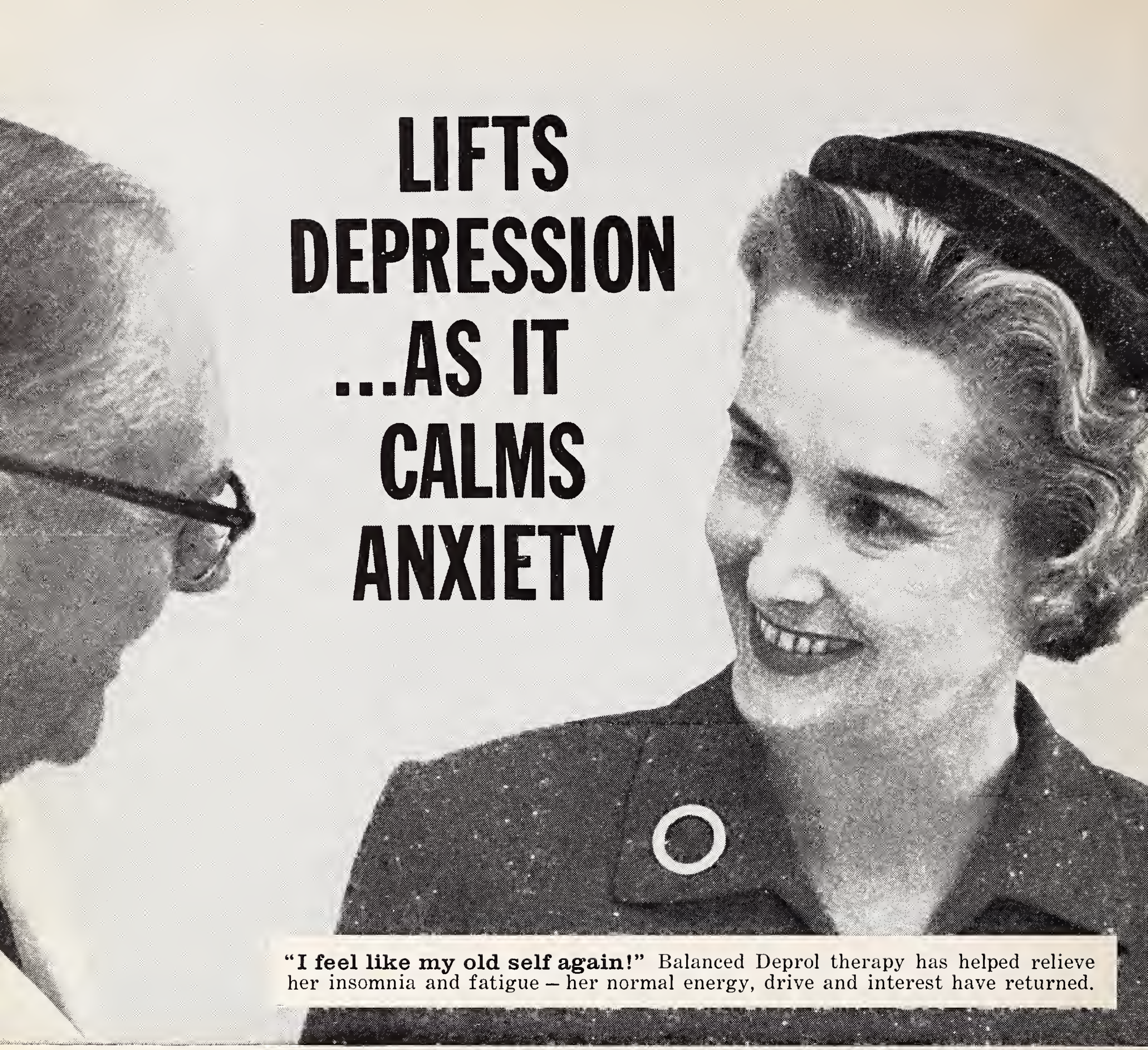
He is a member of the Yale Class of 1926 and a graduate of the Yale Medical School in 1930. Dr. Mendillo, after serving a six-year residency in surgery at New Haven Hospital entered private practice in 1936.

Dr. Mendillo is a member of the Connecticut State Medical Society, the New Haven County Medical Association. He is also a member of the Society of University Surgeons, the American College of Surgeons, the International College of Surgeons and the Connecticut Board of Surgeons.

Naugatuck Valley Medical Society

Over 60 members and wives of the Naugatuck Valley Medical Society who belong to COMPAC attended the first lecture on political action given by COMPAC in the State of Connecticut on October 2, 1962.

Over 800 persons attended the 2nd Annual Scholarship Ball sponsored by the Woman's Auxiliary of the Naugatuck Valley Medical Society on October 6, 1962. Co-Chairmen for the event were Mrs. John Narowski and Mrs. Fred Haddad.



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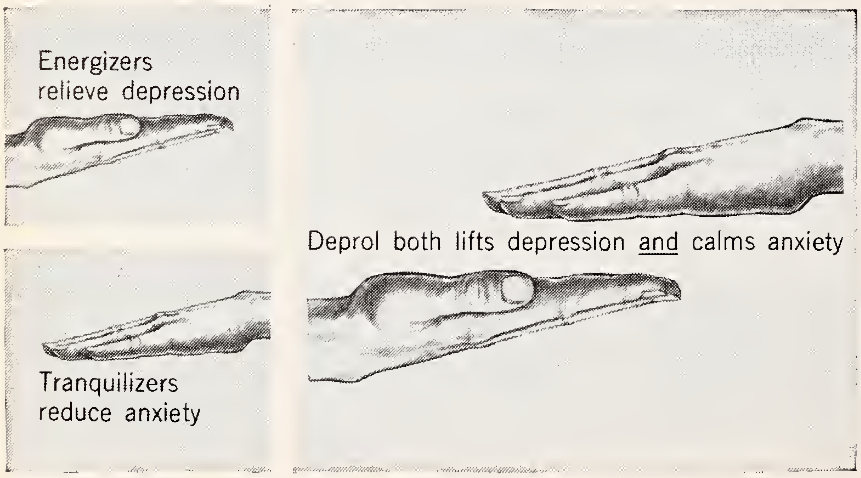

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National Fall Conference Facts
Chicago, September 30-October 3, 1962

Mrs. Morton Arnold of Connecticut, Eastern Regional National Vice-President, presided at the membership dinner for our region, preceding the opening of the conference.

Monday morning's "Early Bird" discussion was a demonstration of parliamentary procedures. Dr. Blasingame greeted the auxiliary and assured us that we were a great source of strength, especially with the ability to raise funds for A.M.A.E.R.F.

The American Farm Bureau Federation stressed the part the auxiliaries play in rural health and in the political and economic health of our country.

The auxiliaries can help to interpret the broad concept of youth fitness and encourage an extensive and varied program of physical education in the schools and colleges.

"How to hold an audience without a rope," was a speech clinic. It went into detail as to how to approach an audience, what to say and how to say it.

Tuesday's "Sunrise" discussion was on membership problems, how to approach them and how must they be solved.

The Bulletin is the media of communication from national to state and county level. The objective this year is to further promote circulation toward a 100 per cent subscription among auxiliary members.

"National Security and You" was the topic of Civil Defense. We as homemakers and community leaders can face future crises by being prepared for any kind of disaster or emergency.

International Health Activities is a new field in which we have the opportunity to serve and to show that someone cares. All states should have safety projects for the home, school, and the community. Safety is constant vigilance.

As auxiliary members, it is our privilege to be able to aid in recruiting students for "Health Career." This can be done by the use of the guide book tools, by a work shop and career day, a nurse scholarship bureau, or a career night.

"How do you expect to rate if you don't Communicate," was our next challenge. Make a decision, sell it and communicate it. It is up to the auxiliary to press the public. With good public relations by being well informed and able to inform others.

"The Sixth of November." We can play an important role before the 6th. There is no reason for defeatism. We do not need to compromise. We can fight for a victory, the future of medicine, free enterprise and legitimate federal and state participation in the care of the aged. We must know the candidates, their stands on medical issues and support and defend those who uphold our views. AMPAC offers the auxiliary the impact of an effective, coordinated, national political action program. Politics are clean, simple and legal. The time is never too late to be effective. First find out what the candidate wants and needs. There is something for every one to do.

County Notes

Fairfield County Auxiliary has been stressing membership, and has met the challenge by various methods through contact with doctors' wives. Fairfield County Community Service is initiating a pilot project in several of the High Schools. It is to be a Health Poster Contest among art students sponsored by the Auxiliary to foster greater interest in general health and safety among teenagers. A Savings Bond will be awarded to the winner.

In Litchfield County, Mrs. Joseph Lester, Representative to the State Legislature from Litchfield, was guest speaker at the semi-annual meeting. Her subject was "Issues in the Campaign." Also present was a representative from COMPAC to further enlighten and stimulate the group. Dr. Francis Braceland was a guest speaker at the semi-annual meeting. A physician member of the Board of

Directors of COMPAC was present to introduce Mr. Lee Eisenberg.

Community Service Committee is attempting to obtain volunteers to man a second car for the "Meals on Wheels" program.

Middlesex and New Haven Counties have had speakers and programs on COMPAC, and Dr. Annis's television program film at Madison Square Garden.

Windham County Auxiliary had approximately twenty members participate in a Glaucoma Screening Clinic held in Willimantic. This was sponsored by the Connecticut Society for the Prevention of Blindness, a division of the National Society for the Prevention of Blindness, Inc., in cooperation with the Windham Community Memorial Hospital, Chronic Disease Section of the State Department of Health, ophthalmologists of the Connecticut State Medical Society, and local nursing agencies.

Connecticut State Congress On Medical Quackery

The first meeting of the Congress was held on September 26, 1962 at the Connecticut Light & Power Company in Berlin.

We were introduced to the "Why's of Quackery." A quack is an ignorant or fraudulent pretender to medical skill. People are easily taken in with unbelievable promises and terms for various ills. Quacks are experts who skip the truth and play on the human needs. Connecticut is following the Federal Drug Administration in doing away with false advertising and confiscating lethal drugs and gadgets. To do so, we must have strict laws. Quackery in nutrition and vitamins were stressed, and we must educate the public to support these laws against false promises. The Arthritis and Cancer Associations have a vital part in obliterating prevailing quackery. Quackery effect on the consumer is a responsibility for the medical profession.

Medical And Surgical Relief

While no meetings of the Medical and Surgical Relief Committee have been held, letters have been written to each county chairman informing her of the plan to collect medical text books and magazines and to deliver them to the Work Shop of the Darien Book Aid Plan, Inc. in Darien, Connecticut.

Accompanying each letter was an information booklet showing the work of the organization which ships material overseas, and a number of copies of a guide to be used in selection of publications which are donated by the physicians of Connecticut. Requested materials are various medical manuals of all specialities. All medical books and magazines should be screened by the physician as to value medically.

Community Service

At the request of the Connecticut State Medical Society, Community Service arrangements were made for health exhibits at nine county fairs. These include three fairs in Litchfield County, one in Windham, one in New Haven, two in Tolland, one in Middlesex, and one in Hartford County.

Literature at the exhibits this year features material on the oral polio vaccine, and information on polio and tetanus. Also included are first aid charts, emergency medical cards, and emergency medical service cards.

Special Notices

NEWINGTON HOSPITAL FOR CRIPPLED CHILDREN

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Auditorium

MEDICAL-DENTAL STAFF MEETINGS

Monday Evening, November 12, 1962

7:30 P.M.

"Pilot Study Film of Neurophysiological Approach to Cerebral Palsy Habilitation—Part II"

Edward D. Mysak, Ph.D., Assistant Professor of Speech Pathology, Columbia University

"Review of Muscular Dystrophy Experience at Newington"

Thomas D. Rizzo, M.D., Resident in Orthopaedic Surgery

Open to all interested physicians.

Monday Evening, December 3, 1962

7:30 P.M.

"Scoliosis"—John H. Moe, M.D., Minneapolis

Dr. Moe will also conduct rounds, Tuesday morning, December 4, 8:00 A.M., Medical Conference Room.

Diabetes Week—November 11-17

Dr. Leo P. Kroll of the senior staff of the Joslin Clinic will address a joint meeting of the Connecticut Diabetes Association and the New Haven Medical Association on Wednesday, November 7th, at 8:15 p.m., inaugurating Diabetes Week and the 15th annual diabetes detection drive in Connecticut.

His topic will be "Some New Thoughts About An Old Disease, Diabetes Mellitus" with comments on the oral hypoglycemic agents, newer insulins, and pre-diabetes studies.

The meeting will be held in the New Haven Medical Association building, 364 Whitney Avenue, New Haven.

OBITUARY

Samuel Donner, M.D.

1896 - 1962

We record with sorrow the death of Dr. Samuel Donner. He was born in Hartford, Connecticut, son of Jesse and Lena Klein Donner, educated in the Hartford schools and graduated from Yale University in 1918. He graduated from Cornell University School of Medicine in 1923, and practiced internal medicine in Hartford until his death September 13, 1962.

He was visiting physician at the Mount Sinai and the McCook Memorial Hospitals in Hartford, having been president of the McCook Hospital medical staff for nine years, and had been on the Executive Committee for thirty years. He was president of the Connecticut Diabetes Association, and chairman of the Hartford Diabetes Detection Drive.

Dr. Donner was past president of the Hartford Medical Society, and a trustee at the time of his death. He was a member of the Hartford County Medical Society, a member of the Connecticut State Medical Society, and a Fellow of the American College of Physicians. He was a member of the Emanuel Synagogue where he served as president of the Brotherhood for three years. In addition he served with many philanthropic organizations.

He leaves his wife, Mrs. Judith Dublin Donner, his daughter, Mrs. Yona Hermann, and two grandchildren.

It is characteristic of this man that he died at the bedside of a patient he was serving. He had full knowledge of the extent of his illness, and chose to continue the practice of medicine and the service of his patients. He will always be remembered by the community which he served so faithfully, by his colleagues who respected him as a man and physician, and by numerous young physicians throughout the country whom he inspired with the desire to pursue medicine. We have lost a beloved mentor and friend.

Robert Karotkin, M.D.
W. H. Glass, M.D.

In Memoriam

Burns, Bernard J. — Bridgeport; Georgetown Medical School, 1918; Dr. Burns was a general practitioner in Bridgeport for 43 years. He had been president of the hospital staff at St. Vincent's in 1940. Dr. Burns was a member of the Council of Catholic Men. He died October 1 at the age of 72.

Cogan, George E. — Hartford; Georgetown University Medical School, 1923; he was a Navy Air Corps veteran of World War I. Dr. Cogan was chief gyniatric at St. Francis Hospital. He was founder of the Diplomat American Board of Obstetrics and Gynecology and was a member of the Fellow American College of Surgeons and the consulting obstetrician. Dr. Cogan was president of the medical and surgical staff of St. Francis Hospital, a colonel on the governor's staff of Governor Hurley during his administration, a commissioner of the Board of Health, and a member of the Board of Advisors at the Robinson School. He was a member of the Hartford County Medical Association, the Connecticut State Medical Society, the New England Medical Societies, the Knife and Stork Club of Connecticut, the Farmington and Avon Country Clubs, the Graduate Club of New Haven, and a trustee of Albertus Magnus College. Dr. Cogan died October 4 at the age of 64 after a long illness.

Rosenberg, Ernestine — Bridgeport; University of Vienna, 1938. Dr. Rosenberg was a specialist on cancer and allied diseases. She was on the medical staff of St. Vincent's and Park City Hospitals. Dr. Rosenberg was active in the Cancer Detection Clinic of Park City Hospital and was vice-president of the Bridgeport Cancer Society. She was a member of the Connectict State Medical Society and the American Medical Association. Dr. Rosenberg died September 25 at the age of 50 after a long illness.

NEW BOOKS IN REVIEW

INTERNAL MEDICINE IN WORLD WAR II, Volume I—Activities of Medical Consultants, W. Paul Havens, Jr., M.D., Editor, published by the Medical Department of the United States Army, 1961, 880 pp.

REVIEWED BY DENIS S. O'CONNOR

Another volume in the official history of the Medical Department of the United States Army in World War II has been received and even a casual perusal by anyone who had executive responsibilities in the medical service of one of the military branches in the war reveals the importance of the material contained in the volume which is based upon the activities of the medical consultants.

It should have been evident to anyone at the time of World War I that preparation for war, whether in the actual fighting forces or in the auxiliary services, was something too complex to be mastered overnight. And yet, between World War I and II our military planners made no effort to disprove the futility of the statement of William Jennings Bryan that if anyone attacked the United States "a million men would spring to arms overnight." Anyone with organizational experience would know that a thousand men, or even a hundred men, without basic training would be but a helpless mob.

The weapons of war have for many decades required high technical training for their handling and scientific medicine likewise has developed into a highly departmentalized science.

In military life the doctor is an officer and his approach to medicine is conditioned by directives from higher authority. Little can be done on personal initiative and for all practical purposes "a doctor is a doctor." The officer is considered to be qualified to fill any assignment within the medical department based upon military rank.

In civilian life, doctors were becoming highly specialized in many medical fields between World War I and II but the beginning of World War II found the military services still thinking of a "doctor as a doctor" and his military rank as the qualification for an assignment.

It was not surprising that in the early phases of World War II highly specialized doctors from civilian life found themselves in routine circumscribed assignments where their effectiveness was of slight value.

If there is one lesson to be learned from the experience of the medical consultants as set forth so emphatically in this volume, it is that in peace time doctors must learn military routine by reserve service training and the military services must know and assign civilian doctors to the places in the military establishment where the maximum value of their professional service can be used.

While specific experience in World War II may be of little value in preparation for a possible future war due to the advances in medicine and the scientific developments of warfare methods, the organization by which the most effective usefulness can be made of each specialized medical unit and the most effective value of medical diagnosis and treatment for the limitation of non-effectiveness in manpower can always be kept in the same state of military readiness as the instruments of warfare itself and this and the other volumes covering experience in World War II, if properly used in the indoctrination of our medical reserves, can prevent the confusion and unnecessary delay in bringing a uniformly high quality of medical care to the men who must respond to their country's call and rightly expects the military organization to give them the best medical care commensurate with the dangers they are called upon to face.

How to turn this information into knowledge for those who must be ready to do the casualty work in war or in civil disaster is the problem. Are we properly organized in military medical education to transmit this valuable experience to the new generation with the assurance that our previous groping will not have to be repeated?

THE TREATMENT OF DIABETES MELLITUS, 10th edition, by Elliot P. Joslin, M.D., Howard F. Root, M.D., Priscilla White, M.D., and Alexander Marble, M.D., Lea & Febiger Co., Philadelphia, Pa., 1959, 789 pp., $16.50.

REVIEWED BY PAUL LAVIETES

Dr. Elliot Proctor Joslin acquired an early interest in diabetes as a student at Harvard and pursued it with all his energy until his death on January 28, 1962, after seven decades of practice in this field. He was in intimate contact with all of the new developments over these many years and his observations on over 50,000 patients added much to our knowledge and to patients' well being.

The first edition of Dr. Joslin's book appeared in 1916. The tenth is unfortunately the last which will bear his personal imprint. Dr. Joslin's co-authors, all of whom are associates in the Joslin Clinic, deserve much praise for comprehensive coverage of diabetes in relation to each of the organ systems and for excellent sections on physiology and pathology.

This is primarily a clinical treatise, with positions firmly taken and clearly presented. While one may disagree with the authors about some of these, all are based on wide experience and extensive knowledge of the literature, and rightfully carry great authority. The bibliography is excellent.

This classic in diabetes should continue to be invaluable to the clinician in his handling of diabetic patients and to the expert as a ready source of information and references.

FUNDAMENTAL SKILLS IN SURGERY, by Thomas F. Nealon, Jr., M.D., Associate Professor of Surgery, Jefferson Medical School, published by W. B. Saunders Company, Philadelphia and London, 1962, 289 pp. $8.50.

REVIEWED BY JAMES R. CULLEN

As the author states in the preface, the reason for this book is the compilation of material, already written as separate articles by the author and others of fundamental surgical skills, and arranging this in one volume so that this knowledge would be readily available to all interested surgeons.

Many areas are important to all practicing physicians as seen from the titles of the twenty-two chapters which cover principles necessary to the care of the surgical patient pertaining to instruments, operating room conduct, sutures, dressing of wounds, anesthesia, trauma, infection, burns, minor surgery of skin and superficial tissues, infants and children, gastrointestinal intubation, the head and the neck, the upper extremity, the breast, the chest, the abdomen, the anorectal region, the lower extremity, the urinary tract, the circulatory system including fluid and electrolyte therapy, and finally resuscitation which covers acute emergencies of the respiratory tract and cardiac arrest.

Throughout the book the author states concisely the usual methods for doing a given procedure and stresses one accepted method so as to leave no doubt in the reader's mind as to how a suitable technique or treatment can be properly done according to present medical knowledge. He does not pretend to give all the methods of treatment or diagnoses. However, his explicit method of stating one way of doing a treatment or accomplishing a diagnosis leaves the reader with something to go on when he is presented with a given problem.

The first five chapters deal with the real basic essentials of either general surgery or a subspecialty in surgery, explaining the care of the patient, the types of instruments, conduct in the operating room, the types of sutures and why different sutures are used at different moments with explanations of the reasons for different wound dressing techniques. These chapters are especially well illustrated, easy to follow, and are of great use to the resident in the early stages of his surgical training.

Chapters six through ten dealing with anesthesia, infection, trauma and burns and minor surgery of the skin and superficial tissues covers areas which are sometimes lightly passed over in the usual training course, and also delves rather deeply into the treatment of trauma and burns where many changes have occurred in the past decade.

The chapter on infants and children is especially enlightening and well worthwhile for those training in pediatric surgery as well as the general surgeon.

Excellent illustrations are present in the chapter on gastrointestinal intubation and bring one up to date with the progress that has been made in this field since World War II. I think that this chapter would be of particular interest to men who have this type of work done for them by residents, but who themselves are not familiar with all the problems underlying this form of treatment.

Those chapters dealing with the special areas of the body, have been covered very adequately; in fact in many places Dr. Nealon has written short treatises which are quite complete. The chapter on the circulatory system including fluid and electrolyte therapy, describes in a most concise manner why certain of the electrolytes are used, when they are used, and when they should not be used, and presents the fundamentals needed by everyone dealing with circulatory disturbances in any type of patient.

The final chapter on resuscitation, whether needed because of tracheal obstruction or cardiac arrest, gives a good thumb nail sketch of the proper procedures to be carried out when one meets these types of emergencies.

This book is well worth reading by anyone engaged in the practice of general surgery or its subspecialties. It is easy to read with excellent illustrations which make the subject matter readily understood. It is of special interest to young men in their formative period of surgical training, and I believe that it would be of great advantage for each surgical resident at the beginning of his training period to have this text available to him; indeed I urge that one of these books be presented to every first year surgical resident to be used as a guide upon which some of his training will be built.

THE IMMUNOLOGY OF RHEUMATISM, by Jerzy B. Kwapinski, M.D., C.S.c., and Marshall L. Snyder, Ph.D., Appleton-Century-Crofts, New York, 1962, 255 pp.

REVIEWED BY HARRISON F. WOOD

The authors had a dual purpose in writing this book: to present theoretical background and some immunological concepts in relation to rheumatic diseases and to provide detailed, practical directions for performing diagnostic laboratory procedures. They were very much more successful in fulfilling the second purpose than the first.

Repeated mention is made of "the rheumatic process" without reference to clinical and pathological differentiation of specific diseases. The authors advance a concept of rheumatic "heteroreagins" which they define as "substances of polysaccharide nature that occur in the sera of people suffering from rheumatism" which react in vitro with "heteroantigens." These theoretical concepts are not supported by convincing evidence.

The relatively detailed presentation of a number of immunological laboratory procedures is well organized and useful as is the large bibliography.

PRACTICAL ANESTHESIOLOGY, by Joseph F. Artusio, M.D., and Valentino D. B. Mazzia, M.D., C. V. Mosby Co., St. Louis, Mo., 1962, 318 pp. $7.75.

REVIEWED BY STEVENS J. MARTIN

This book represents another attempt to organize briefly and for pedagogic purposes the rapid developments and ever-increasing laboratory and clinical knowledge of anesthesiology. It was written particularly for the uninformed or for the novice and the inquisitive, i.e. the medical students, general practitioners, nurse students and perhaps the inquiring internist and surgeon. The book was not prepared for residents in anesthesia or for the qualified anesthesiologist.

The purposes of the book are to stimulate medical students to select this field as their specialty and to encourage general practitioners administering anesthetics to seek further instruction for safe anesthetic practice. It is also designed to serve as a simple practical guide for other physicians administering anesthetics as a matter of necessity or occasional need rather than as a specialty. As such, the authors have successfully achieved their goals.

The authors made an ambitious attempt to summarize progress made in virtually all aspects of anesthesiology. In so doing, comprehensive evaluation of such progress was sacrificed at the expense of brevity. Many would feel such sacrifice unwise, i.e. anatomical considerations with only a cursory reference to the lungs and heart and no mention of the spinal cord or peripheral nerves; the extremely brief, elementary review of the physiology of respiration and systemic circulation; the mere listing of theories of narcosis, and the action of anesthetic drugs. However, others might appreciate the concise, brief, authoritative, clearly expressed resume of developments in anesthesia, the cautious and wise avoidance of controversial subjects, the emphasis on random "don'ts" in anesthesia and the helpful list of references.

The book is conveniently divided into five parts covering basic, pre-anesthetic, anesthetic, technical and special considerations of anesthesia. A total of 43 individual subjects are briefly discussed under these considerations. The fine quality of paper, "easy-to-read" print, and helpful illustrations are additional features. It is recommended for those listed above.

ENZYMES AND DRUG ACTION, Ciba Foundation Symposium, Little, Brown & Co., 1962, 556 pp. $12.50.

REVIEWED BY JACK COOPER

This symposium, which was held in London in March, 1961, is the best discussion of current problems in biochemical pharmacology extant. Almost every pharmacologist of international repute contributed either formally or in discussions to this meeting so that the thoughts expressed represent reflections on drug-enzyme interactions on a high intellectual plane. Since all the topics covered in this symposium, and these include receptors, active transport, drug tolerance, etc., are of a fundamental nature, this approach coupled with the paucity of knowledge on these topics makes for a book with a lot of words but very few definitive statements. Nevertheless, the up-to-date information and stimulating hypotheses contained in this volume make it an invaluable book for graduate students in pharmacology and for pharmacologists with a biochemical orientation.

CHILDBIRTH WITH UNDERSTANDING, by Herbert Thoms, M.D., Professor Emeritus of Obstetrics and Gynecology, Curator, Yale Medical Memorabilia, Yale University, Springfield, Ill., Charles C. Thomas, 1962, 98 pp. $5.00.

REVIEWED BY STANLEY B. WELD

To Dr. Herbert Thoms should be ascribed the credit for pioneering in three related fields of obstetrics in the United States, viz., preparation of the obstetrical patient for the experience of childbirth, establishment of the rooming-in unit, and development of the nurse-midwife in hospital obstetrics. The road has not been an easy one for each of these changes in the old order has met with resistance, chiefly from professional colleagues.

This little volume contains a wealth of information and portrays to the reader the reasons for the acceptance of all three innovations. Dr. Thoms describes the Prepared Childbirth Program as developed at Yale, its phenomenal success over the years because of the thoroughness with which all concerned—patient, husband, physician and nurse—unite in a single effort to enhance a happy family life by an experience made both rich and rewarding.

Rooming-in has been carried out very successfully at Yale and could experience a similar success in other hospitals with proper physical equipment and a sympathetic understanding on the part of the nursing profession. Unfortunately most hospitals have not found it convenient to remodel present structures to provide suitable units. The demands of the public may force the construction of such units in the not too distant future.

The third modality which Dr. Thoms describes and advocates is the nurse-midwife. He presents very sound reasons for training such a group. Many of his colleagues feel they are not so busy that they need a nurse-midwife to remain with the patient during labor and even to function for the obstetrician at delivery when the latter is unavailable. Time may show, however, that the nurse-midwife will have so much to offer the patient of the busy obstetrician that the public will recognize her function as a valuable asset and, as in the case of the other two modern developments, may turn to the obstetrician who utilizes the services of a nurse-midwife.

This volume is very readable. One cannot help feeling that it represents a sort of valedictory for the author who has dedicated his life to the art as well as the science of obstetrics. The profession owes much to Herbert Thoms.

AN ATLAS OF ACQUIRED DISEASES OF THE HEART AND GREAT VESSELS, by Jesse E. Edwards, W. B. Saunders Co., Philadelphia and London, 1961.

Volume I. Diseases of the Valves and Pericardium, pp. 1-484.

Volume II. Coronary Arterial Disease, Systemic Hypertension, Myocardiopathies. The Heart in Systemic Disease and Cor Pulmonale acute and chronic, pp. 485-984.

Volume III. Diseases of the Great Vessels, pp. 985-1401, 1401 pages with additional 36 pages of index, total of 2325 figures. $70 set of three volumes.

REVIEWED BY LOUIS H. NAHUM

The author has seriously attempted a correlation of functional and clinical manifestations on the one hand with pathologic anatomy on the other. In fact, this is the philosophy of these volumes which he states he was imbued with by his own teacher of anatomy at Tufts, Dr. Benjamin Spector and his pathology teacher, Dr. Harold E. MacMahon.

The volumes are the result of fourteen years of observation at the Mayo Clinic and the Mayo Foundation of the University of Minnesota. The monumental nature of the work makes it in the nature of a reference work also in the organization it can be considered a series of illustrated lectures. But it is more than lectures in anatomy or pathology for here one finds correlating presentation of pathologic, physiologic, roentgenographic, electrocardiographic and clinical findings. In this way everyone's viewpoint is broadened. The medical student and resident because of necessity due to the crowded curriculum of present day medical schools, must lose the broader view of the ramifications of acquired diseases of the heart and great vessels. The internist and cardiologist will see the interrelationship of the acquired diseases of the heart and great vessels with other body systems.

The cardiac surgeon has much to learn here of anatomic detail in planning the application of therapeutic procedures. Roentgenology is so closely interwoven with gross pathology that the material in this book should greatly appeal to the roentgenologist.

There is one important point about this book. Although the primary selection of the material comes from the necropsy room, the lessons are projected toward the living patient who suffers symptoms and signs from the functional derangements.

The idea to compile this magnificent atlas arose in 1946 almost at the beginning of the advancing field of cardiovascular disease. All will agree that it was followed by a glorious decade in which substantial developments in diagnosis and in therapy occurred almost in geometric progression. Now it is realized how important the material in this book can be. It certainly should be widely used by cardiovascular teams, by residents, cardiologists, pathologists, physiologists. In fact, it is an enduring contribution to diagnosis and medical and surgical treatment of cardiovascular disease.

As one might expect diseases recognized in 1961 will not be found in a book completed in 1960. One such item is alcoholic cardiomyopathy. Occasionally electrocardiopathic correlations are not quite acceptable such as figure 1450 page 869 where a depression of STV 5 and 6 is interpretated as due to lateral infarction. But such aberrations are minor compared with the solid nature of the material and the clinical pathologic correlations which should satisfy even the most critical and fastidious reader.

A STUDY OF PHYCHOPHYSICAL METHODS FOR RELIEF OF CHILDBIRTH PAIN by C. Lee Buxton, M.D. W. B. Saunders Company, Philadelphia, Pennsylvania, and London, England, 1962, 116 pp. $4.75.

Reviewed by: IRVING FRIEDMAN

The psychophysical approach to relief of childbirth pain began as a reaction against the heavy-handed use of sedative and emnesic drugs. One of its goals is to so manage delivery that the patient remains conscious and cooperative but adequately relieved of pain and anxiety with a minimum of medication. Beyond this, however, its purpose is to give the mother a gratifying experience of pregnancy and delivery which she later remembers with pleasure and satisfaction, and to strengthen the psychological bonds of the family relationship.

The question as to whether or not such methods have an important place in modern obstetrics has engendered a controversy of unusual bitterness and intolerance; the hallmark of an argument that cannot be settled objectively. Dr. Buxton's chapter on "Pain" leaves one with the conviction that there is no satisfactory definition of pain, far less any method of measuring it objectively. Who, then, is to judge whether pain and anxiety are adequately relieved, and the experience gratifying? The doctor? In these matters he is a spectator and confidant at best, and he can make a intelligent but second-hand guess. The patient should be well able to answer these questions, but to rely solely on her is to be reduced to scientific evaluation by testimonial. In spite of these difficulties large and growing numbers of obstetricians throughout the world have been favorably impressed with the benefits of preparation for childbirth.

Dr. Buxton visited over thirty clinics where psychophysical methods are used, in the U. S. A., England, Norway, Sweden, Denmark, West Germany, Switzerland, Belgium and France, and he studied reports from the Soviet Union and elsewhere to observe and evaluate the various theories and techniques. These are described in detail in his book. It is a curious and revealing fact that the theories which are advanced by various clinics in support of their methods differ widely, as do the details of their application. Some emphasize the fear-tension-pain sequence of Grantley Dick Read. Others rely upon hypnosis (and perhaps rightly belong in a separate category). In Russia, and politically sympathetic quarters, the program is based upon Pavlovian conditioned reflexes. Physical exercises range from practice in muscular relaxation on the one hand to gymnastic exercises such as an athlete would practice in preparation for competition. In some delivery rooms the patient is constantly encouraged, while in others absolute silence of the attendants is enforced. Yet all enjoy an impressive measure of success in spite of their diversity.

Each program includes procedures which perhaps are superfluous and unnecessarily time consuming. Dr. Buxton has tried to find common ground from which a simpler program might evolve. All programs educate and prepare the patient for the experience of labor, and utilize support during labor. They share a sympathetic attitude toward the patient, an empathy between the patient and her attendants The patient is not treated as unpromising material from which the obstetrician and hospital routine bring forth a baby. Rather she is made to feel that she is preeminently important in the bearing of her child, and that her comfort, her anxieties and even her passing thoughts are important to her attendants. This sense of importance and dignity is a potent psychological tonic.

Dr. Buxton came to New Haven some years ago well experienced in the pharmacological methods of pain relief, and obviously skeptical about "natural childbirth." He brings to this book a seasoned, cautious outlook. He finds much good, and much further promise in the psychophysical approach to relief of childbirth pain. Obstetricians should find the book interesting and profitable.

THE RELUCTANT SURGEON by John Kobler. Doubleday & Co., Inc., New York, 1962, 439 pp. $1.45.

Reviewed by: IRA S. GOLDENBERG

John Kobler, a frequent contributor to medical and scientific writing, has produced one of the most readable and fascinating biographies of one of the most important scientific surgeons of all time, John Hunter. This crude, unlettered native of Scotland is depicted in terms sharp and clear and his importance in so many fields of natural science is delineated. Pathology, physiology, biology, hematology, genetics, psychology, zoology, botany, geology and paleontology were all intimate parts of his life and his contributions to these areas manifold in number. But most important, the author demonstrates how the Hunterian method changed surgery from a bumbling mass of incoherence and superstition to a true science.

Unappreciated by but a few of his contemporaries during his lifetime, John Hunter is now recognized and haled for his razor sharp evaluation and concise explanation of natural phenomena. All of this Mr. Kobler etches magnificently in an exhaustive chronology of Hunter's life and times. Many famous figures—Boswell, Lord Byron, Joshua Reynolds, Thomas Gainsborough, Benjamin Franklin—wander across the pages and the reader soon is on the friendliest terms with them as life in 18th century England is depicted. As the author states in his preface: "Hunter . . . introduced a new spirit of inquiry, a philosophy, which not only transformed the medical theory and practice of his epoch, but profoundly influenced scientific thinking everywhere down to our own times." This book tells how and why.

To the casual observer unfamiliar with John Hunter's greatness, this volume is a must. To the already knowledgable devotee, this book reinforces Hunter's stature.

Corticosteroid Therapy In Children

Systemic therapy with adrenal steroids is never without risk, and an awareness of the potential hazards is especially necessary in the treatment of infants and children. As with adults, severe bacterial infections, including septicemia, pneumonia, and staphylococcal and streptococcal infections, may complicate prolonged steroid therapy in children. Because of the anti-inflammatory effects of the steroids, moreover, an infection may reach an advanced stage before showing any overt sign.

It has been suggested that steroids given in large doses for brief periods *after* the onset of infection may be useful in some patients with serious acute infectious disease (W. W. Spink, *Ann. Int. Med., 53*:1, 1960). This view is disputed, however; the efficacy of steroid therapy in overwhelming bacterial infections such as meningococcemia has not been supported by a lowered mortality rate in a significantly large series of cases (C. D. May, *Pediatrics, 25*: 316, 1960).

The hazards of steroid therapy in both adults and children with active or latent tuberculosis are well recognized. As a joint statement by the American Thoracic Society and the National Tuberculosis Association warns, ". . . the prolonged administration of corticosteroids is likely to exert a harmful effect upon the latency and course of tuberculosis . . ." When a patient with evidence of previous tuberculosis requires corticosteroid or ACTH treatment for more than two weeks, the statement advises the prophylactic administration of isoniazid (300 mg. daily for adults; 8 mg. per kg. for children).

Viral Infections—Controlled studies show that steroids reduce host resistance to viral infection (M. J. Romansky, *JAMA, 170*:1179, 1959). The viral diseases of childhood may be unusually severe or prolonged in children receiving corticosteroids for other conditions. Chicken-pox, which normally is rarely fatal in children, has been reported as the cause of death in at least 12 children receiving steroids (W. D. Nichols, *Am. J. Dis. Children, 94*:219, 1957). Longterm steroid therapy should not be started, therefore, at a time when a susceptible child has been exposed to a contagious disease. If a child already on regular steroid therapy is exposed, dosage should, if possible, be reduced to physiological levels, that is, to not more than five mg. of prednisone or its equivalent daily, in divided doses. On the other hand, when infection occurs in a patient receiving physiologic doses of steroids for adrenal or pituitary insufficiency or adrenogenital syndrome, dosage must be maintained or even increased.

Effect on Growth—Growth suppression is another hazard of prolonged steroid therapy (F. M. Blodgett, et al., *N. E. J. Med., 254*:636, 1956), though a spurt in growth occurs when therapy is stopped. When corticosteroids are used in children, therapy should, if possible, be intermittent rather than continuous. The effect on growth is not, of course, a serious contraindication to the use of steroids in nephrosis or leukemia. In less serious cases, the risk of growth suppression and other side effect must be weighed against the benefits of therapy.

In animals, corticosteroid therapy during pregnancy may produce abortion and congenital defects in the offspring. A few clinical reports have suggested the possibility of such occurrence in humans, but the connection has not been definitely established. In addition to the usual side effects of steroids in both adults and children, a pseudo brain-tumor syndrome (headache, papilledema and oculomotor paralysis) has been reported in children. It disappears promptly, however, if the syndrome is recognized and therapy discontinued.

Reprinted from the Medical Letter on Drugs and Therapeutics, New York, N. Y.

M.D. Lobby To Fight Air Pollution Urged

The medical profession was urged to "constitute itself a lobby against air pollution" in the same way it lobbied successfully for the prevention of tuberculosis in the 1920's and 1930's.

"A wholehearted and persistent effort to prevent air pollution can have equal success," Drs. Seymour M. Farber and Roger H. L. Wilson, San Francisco, said in the current Journal of the American Medical Association.

Air pollution plays an important role in the development of not only lung cancer, but also many other chronic respiratory diseases, they said.

A great many of the malignant, chronic and degenerative diseases are now known to originate in the environment of the individual just as surely as tuberculosis originates in exposure to tubercle bacilli, they said.

The central problem which must dominate research in medicine in the foreseeable future is the relationship of environment to health, they said, and the most acute environmental problem is the relationship between air contamination and respiratory disease.

Doctor's Office

John M. Freiheit, M.D., announces the re-opening of his office at 85 Grove Street, Waterbury.

Joseph C. McCarthy, M.D., announces the opening of an office for the practice of general surgery and rectal diseases at 161 Enfield Street, Thompsonville.

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Connecticut Medicine

Connecticut State Medical Journal

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Allen Chetrick **A Case Of Acquired Agammaglobulinemia: Its Association With Bronchiectasis**

Ralph A. Deterling, Jr. **Surgery In Russia**

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References: (1) Malone, F. J., Jr.: *Mil. Med.* **125**:836, 1960. (2) Martin, W. J.; Nichols, D. R., & Cook, E. N.: *Proc. Staff Meet. Mayo Clin.* **34**:187, 1959. (3) Ullman, A.: *Delaware M. J.* **32**:97, 1960. (4) Petersdorf, R. G.; Hook, E. W.; Curtin, J. A., & Grossberg, S. E.: *Bull. Johns Hopkins Hosp.* **108**:48, 1961. (5) Jolliff, C. R.; Engelhard, W. E.; Ohlsen, J. R.; Heidrick, P. J., & Cain, J. A.: *Antibiotics & Chemother.* **10**:694, 1960. (6) Lind, H. E.: *Am. J. Proctol.* **11**:392, 1960.

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Surgery Of Non-Neoplastic Lesions Of The Parotid Gland

Harry J. Tamoney, Jr., m.d.
Hartford

The pioneering work in safe technique of parotidectomy by Dr. Hayes Martin[1,2] has provided a useful tool in the treatment of diseases of the parotid gland. Fear of injury to the facial nerve was an obstacle to adequate surgery in this area for many years. Identification of the 7th cranial nerve as it emerges from the stylomastoid foramen of the skull, subsequent skeletonization and careful preservation has been the key to ease and safety in this procedure (Diagram I). Formerly, surgeons had to identify one of the many terminal branches of the facial nerve and dissect backwards to where the main trunk emerged from the skull. The presence of inflammatory scarring or bulky tumors made this procedure extremely arduous and often perilous. It was a difficult technical maneuver in the hands of the most competent surgeon and especially discouraging to the surgeon who only occasionally attempted it. This led to the common practice of enucleation or shelling out of nodules of the parotid without any attempt at identifying the nerve.

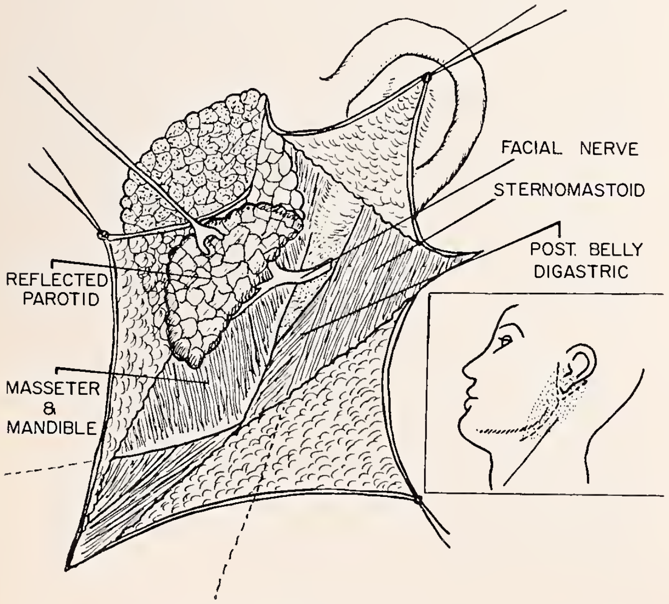

Diagram I

Schematic representation of the 7th nerve skeletonized as it emerges from the skull and the dissection of the parotid gland from it. Inset shows incision and shaded area reflects operative field.

Ample evidence of the advantage of Martin's technique is being reflected in decreased incidence of recurrent benign parotid tumors as well as in improvement in the salvage rate of the malignant tumors of this gland. As the technique of superficial lobectomy and total parotidectomy becomes more standard, and inadequate coring out of parotid nodules is discardeed, not only will the results be more satisfying but the danger of injury to the facial nerve will be erased.

Expansion of indications for the use of Martin's technique is the subject of this report. It is the author's firm conviction that it has a definite usefulness in non-tumorous diseases of the parotid. Cases are annotated below to illustrate this thesis.

One does not hesitate to remove a lymph node from the groin, axilla, or any peripherally accessible area for study. An unexplained unilateral parotid swelling can readily be put into this category since many times it is indistinguishable from that caused by enlarged cervical lymph nodes. A review of the embryological development of the lymphatics of the

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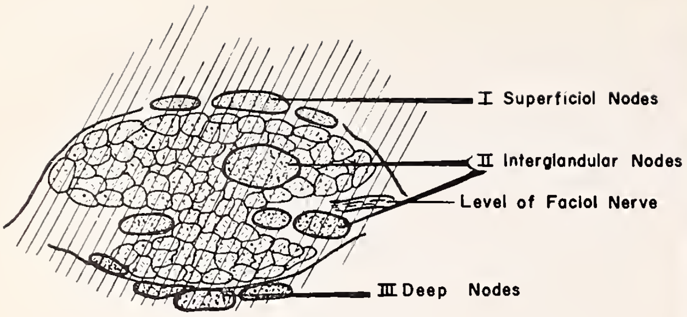

Diagram II

Cross section of the parotid gland showing the three groups of parotid lymph nodes.

neck provides an explanation. The parotid gland is not encapsulated in its early stages and shares a common area with the neck lymphatics as they develop around the jugular lymph sac. Therefore, as development progresses, parotid tissue can easily be incorporated into lymph nodes as can the lymph nodes be included in the substance of the parotid gland. Actually, by adult life the parotid lymph nodes are mainly in three areas and have been named according to each geographical location (Diagram II).

I. Superficial Parotid Lymph Nodes—These are the nodes on the anterior surface of the gland.

II. Deep Parotid Lymph Nodes—Those located on the inferior surface of the gland.

III. Intraparotid or Interglandular Nodes—These are the nodes that are located between the deep and superficial lobes of the parotid or in the substance of the gland when the lobes are fused or not distinct.

Each of these groups of nodes has its own afferent and efferent lymphatic channels.

Like lymph nodes elsewhere one or a number of these parotid nodes may be selectively enlarged. When this occurs and careful search fails to demonstrate an etiology, surgical exploration should take precedence over prolonged observation. The following two patients presented swellings which perhaps could have been diagnosed prior to surgical exploration.

Case No. 1

D. P., a 4½ year old white girl, was admitted to St. Francis Hospital with a history of a swelling of the left parotid area of three months duration (Fig. I). There was no acute episode associated with the onset. The mass was asymptomatic and the child felt well generally, although the mass slowly increased in size. Her past history and that of her family were completely negative. Physical examination on admission was similarly negative except for a discrete 2 cm. in diameter, stony, hard nodule in the left parotid gland. Laboratory workup, including sedimentation time, blood studies and urine was negative. Chest X-ray was not remarkable and PPD was negative. Surgical exploration was then planned. At operation the parotid grossly appeared to be infiltrated by tumor and a left total padotidectomy was performed.

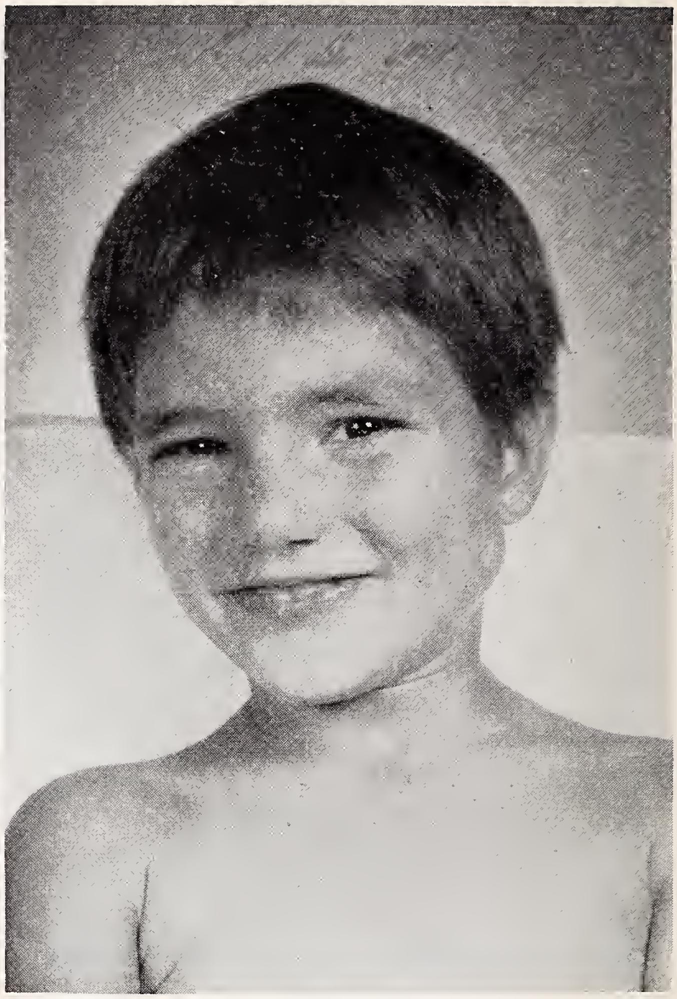

Figure I

Preoperative view of the parotid swelling.

Paraffin sections of the specimens (Fig Ia) demonstrated tuberculous adenitis of a lymph node with extension of the process into the parotid gland. The postoperative course was uneventful; the incision healed satisfactorily, and the patient was discharged on therapy. A repeat PPD was performed during the postoperative period which was positive.

Case No. 2

M.B., a forty year old white married registered nurse, was admitted to St. Francis Hospital with a swelling of her right parotid gland for eight weeks. There was no acute episode associated with the onset of the swelling, nor was there any pansialadenitis or lacrymalitis. Past history revealed no tuberculosis or chronic disorders. The swelling was completely asymptomatic, but had increased in size since onset. Physical examination demonstrated a 2.5 cm. nodule in the right parotid gland. It was hard and non-tender. The remainder of the physical examination was not remarkable. Blood counts, urinalysis, and sedimentation rate were within normal limits. Chest x-ray was negative. At operation a nodule was found between the lobes and grossly was felt to be a tumor of the superficial lobe. A total right parotidectomy was accomplished.

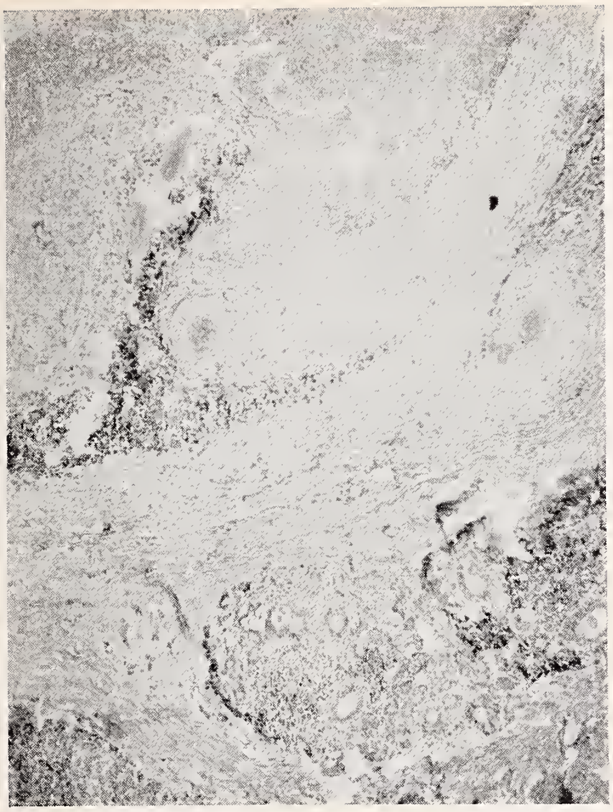

Figure IA
Tuberculous Nodule of the Parotid.

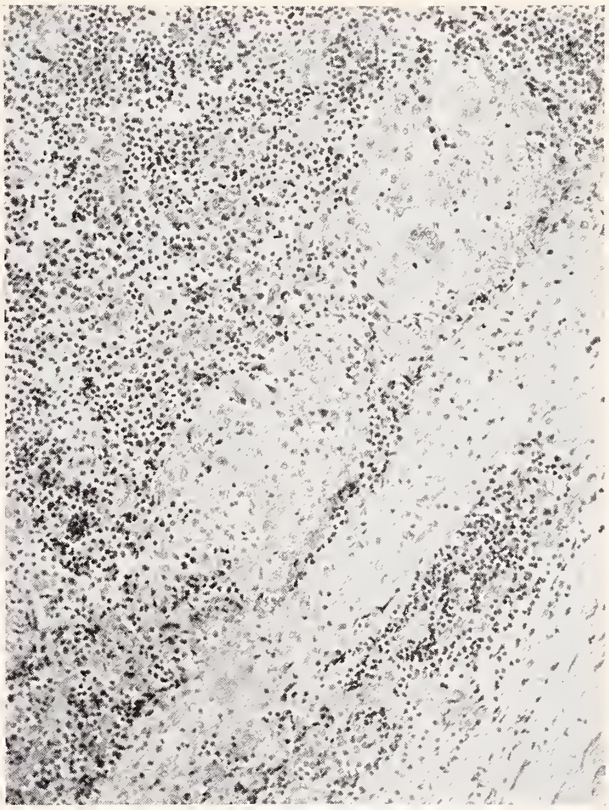

Figure IIA
Lymph Node in the Parotid Gland.

Paraffin sections revealed this nodule to be a lymph node affected by lymph- endotheliosis (Fig. II) or "cat scratch fever". The patient's postoperative course was uneventful. Interestingly enough, further history just prior to her discharge was enlightening. She did have a cat at home as a domestic pet.

Both of these cases illustrate how lymph nodes are grossly, even at operation, difficult to distinguish from parotid substance. Total extirpation of the gland in the second patient represents a good choice over partial biopsy or any lesser surgical procedure. It undoubtedly prevented the disease from progressing into a suppurative abscess in parotid tissue. This same reasoning can also be applied to the first patient. Had a biopsy or lesser procedure been done one could readily envision a draining sinus resulting.

The situation of a discrete unilateral parotid swelling unrelated to any glandular disease or specific pathology is much more common. The following three cases are representative of adenopathy of the parotid nodes due mainly to reactivity. It is not surprising when we consider their drainage from the embryological view point. Drainage to these nodes is possible from the forehead, scalp, eyelids, hypopharynx, as well as the parotid per se. It would appear that parotid swelling should be more common as pathology in these areas is quite frequent.

Case No. 3

S.N., a 16 month old female infant, was admitted to St. Francis Hospital with a six week history of swelling in the left parotid area. The lesion was asymptomatic, and the mother was not concerned until she noticed a dropping of the corner of the left lower lip. The only positive finding upon physical examination was related to the swelling. This was a 2.5 cm. stony, hard nodule located 1.5 cm. anterior to and below the tragus of the left ear. Definite weakness of the ramus marginalis mandibulae branch of the facial nerve was easily demonstrated. At operation a tumor of the deep lobe of the parotid gland was the gross impression, and a total parotidectomy performed.

Histological examination revealed a hyperplastic (Fig. III) lymph node within the substance of the deep lobe of the parotid gland. It should be noted that the mandibular branch of the 7th nerve had to be eased away from an inflammatory zone at the periphery of this node. At three months

Figure IIB
High power of node showing reaction consistent with "cat scratch."

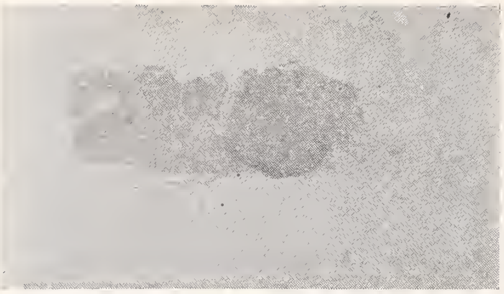

Figure III
Node within the Parotid Gland.

after operation the function of this branch of the facial nerve was completely restored.

Case No. 4

M.S., a 23 year old white married male, was admitted to St. Francis Hospital with a history of a right preauricular cyst of many years duration. The mass was asymptomatic. Physical examination was negative except for a firm, 2 cm. nodule located 2 cm. anterior to the tragus of his right ear. This clinically appeared to be part of the parotid gland. Surgical exploration confirmed this impression and, as the nodule was in the deep lobe, a total right parotidectomy was performed. Pathological examination reported heterotropic parotid tissue in a lymph node (Fig. IV). The patient's postoperative course was not remarkable.

Case No. 5

E.L., a 36 year old white married male, was admitted to St. Francis Hospital with a history of noticing a lump below his right ear of one month's duration. There had been no increase in size of this nodule since the initial appearance and there were no symptoms associated with it. There was a 2.2 cm. stony, hard discrete nodule which clinically appeared to be in the tail of the parotid gland. The operation confirmed this impression, and a superficial lobectomy was performed. The pathologists's examination revealed a lymphangioma at the site of an imbedded lymph node in the parotid gland (Fig. V). Postoperative course was uneventful.

These three patients again represent the satisfactory result of an aggressive surgical approach to unilateral parotid swellings.

Duthoit[3] described a tumor of the parotid salivary gland in a child six weeks of age. Wood[5] reported on a similar tumor in a seven month old infant. Pack[6] states that a malignant parotid tumor has been seen in a newborn. Such reports as these are rare and the author did not feel that the 16 month old infant presented above would turn out to be one of these reportable rare occurrences. On the other hand, it would have been most difficult, clinically and at surgical exploration, to distinguish the diseased lymph node from such a tumor. This difficulty was further enhanced by the noticeable weakness of the facial nerve.

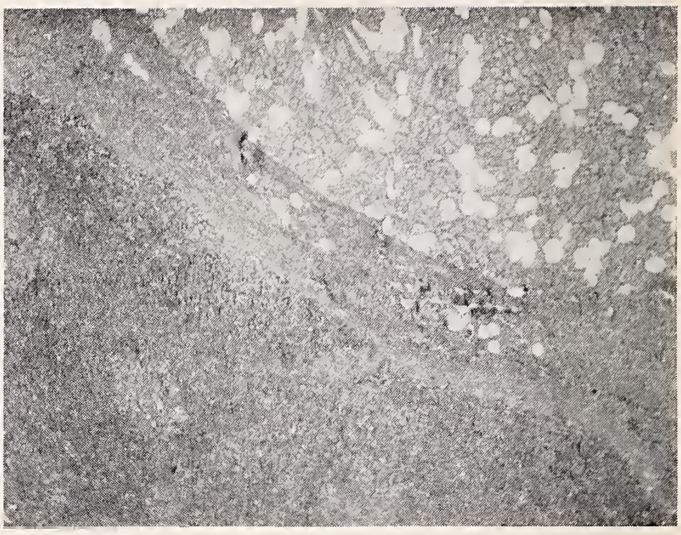

Figure IV
Reactive Lymph node within the Parotid Gland.

It was at a meeting of the Society of Scientific Medicine at Konigsberg in 1888 that Johann Von Mikulicz[7] first presented his thoughts about a patient with chronic and frequently bilateral parotid and lacrimal gland swelling. He later reviewed the literature and analyzed other cases that were similar. Four years later he published his findings together with a careful description of his own patient.

It is fascinating that the pathogenesis of this lesion is as obscure today as when first described.

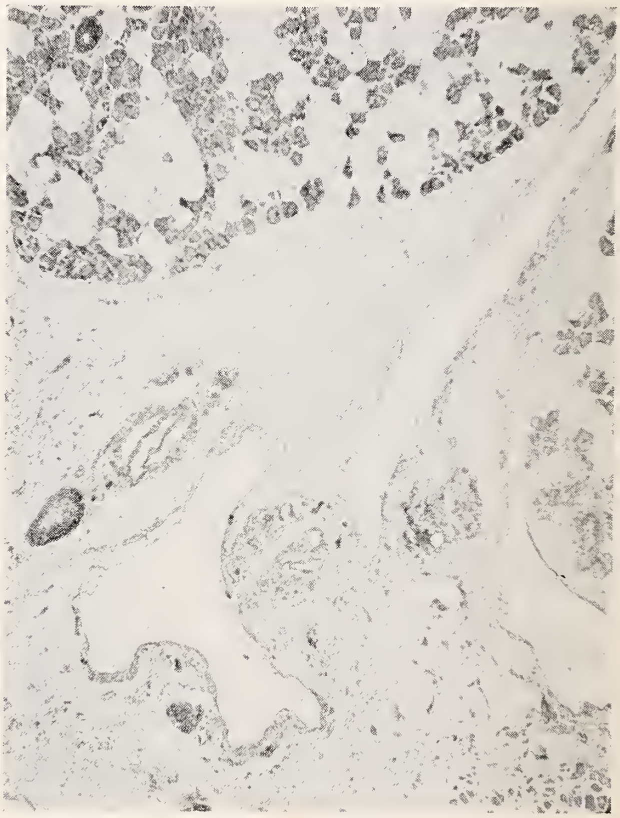

Figure V
Lymphangioma within lymph node embedded in the parotid tissue.

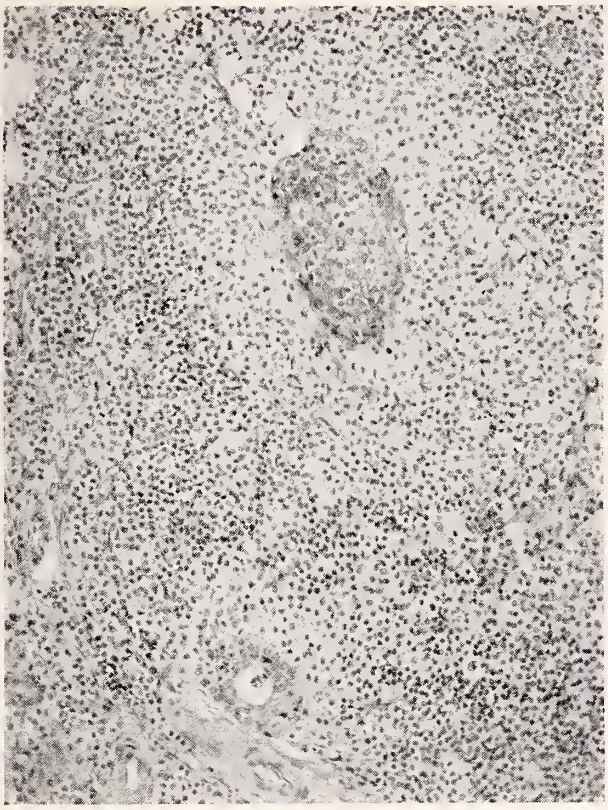

Figure VI
Epithelial focus in lymphoeithelial lesion (Mikulicz's).

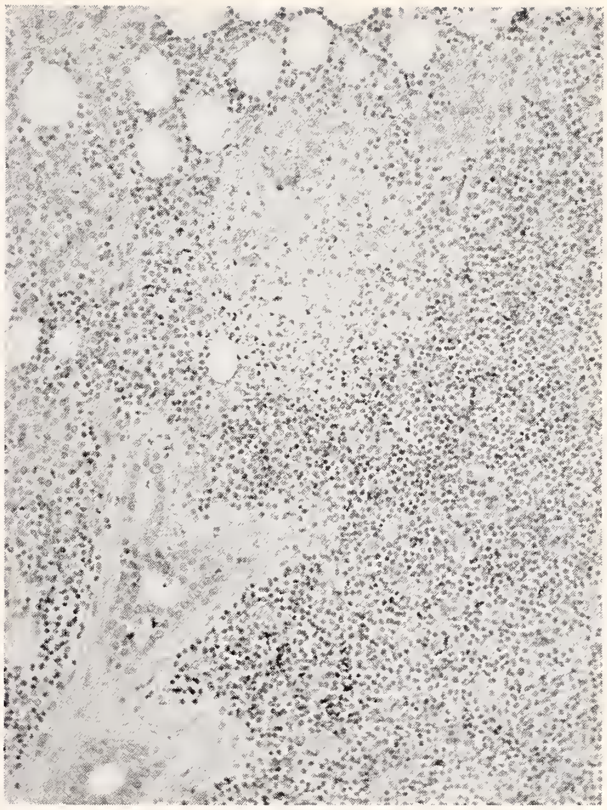

Figure VII
Chronic Parotiditis.

Mikulicz had concluded that it was an infectious or parasitic process. As a result of this lack of specificity numerous conditions of the salivary glands have been detailed in the literature as being representative of Mikulicz's disease or syndrome.

Subsequent publications on parotid swellings have continued to comment on nomenclature and speculate as to the true nature of this disease.[8–17]

A recent report suggests that it is not a disease of the parotid per se, but a reactive hyperplasia of intraglandular lymph nodes.[18]

In 1954, Morgan[19] and in 1960, Hemenway[20] presented a convincing argument to the effect that Mikulicz's disease was a varient or modification of Sjogrens' syndrome. Goltrz[21] in 1961 demonstrated a relationship between Mikulicz's disease and hyperglobulenemic purpura.

Despite the plethora of publications on parotid swellings there is no concrete agreement on management. The following two cases are illustrative of the author's argument for a quicker surgical approach to obscure swellings which could readily be placed in the category of Mikulicz's disease.

Case No. 6

H.P., a 36 year old housewife, was admitted to St. Francis Hospital with a five year history of intermittent swelling of the left parotid gland. The lesion was asymptomatic, but annoying from a cosmetic viewpoint. Her initial attack responded to x-ray therapy. Three other attacks occurred which subsided under conservative measures. In her last episode prior to hospitalization, the swelling did not disappear and another course of x-ray therapy was given. The incomplete regression of the swelling precipitated this hospitalization. The admission physical examination was negative except for a diffuse symmetrical swelling of the entire left parotid gland to two to three times its normal size. A total left parotidectomy was performed and she has had no further difficulty. Histologically the swelling was identified as a benign-lympho-epithelial lesion (Fig. VI). This is one of the nomenclatures suggested for Mikulicz's disease by Godwin.[9]

Case No. 7

J.S., a 55 year old white married male was admitted to St. Francis Hospital with a five week history of a swelling of his right parotid gland. The swelling was asymptomatic. Physical examination revealed his right parotid gland to be diffusely enlarged to three times its normal size, yet there was no tenderness. Total right parotidectomy was accomplished with a preoperative diagnosis of Mikulicz's disease. Postoperative course was not remarkable and the patient, to date, has had no further trouble. Histologically, the lesion was reported to be chronic parotiditis consistent with the category of Mikulicz's disease (Fig. VII).

Neither of the above two procedures were performed because of the feeling that Mikulicz's disease will eventually degenerate into lymphoma or other malignancy. The operation was specific for Mikulicz's disease, and it is the author's contention that this is the proper treatment of these asymptomatic diffuse swellings not only for diagnosis but for long term result.

If specific etiology cannot be demonstrated, nothing is to be gained in delaying extirpative parotid surgery. Antibiotics, x-ray therapy, parotid biopsy, or any other mode of treatment will fall short of the goal achieved by the surgical management proposed.

Summary

1. Three common types of non-neoplastic unilateral parotid swellings have been described and case records of patients illustrating them presented.

a. Discrete swelling due to nodal response to specific generalized disease.

b. Discrete swelling due to nodal response to non-specific disease.

c. Diffuse swelling due to obscure reasons commonly categorized as Mikulicz's disease.

2. Early and aggressive surgical management of all these three types is advocated.

The author wishes to express sincere appreciation for the diagrams presented to Phillip A. Stent, M.D., Department of Surgery, St. Francis Hospital, Hartford, Connecticut.

REFERENCES

1. Martin, H. E.: The Operative Removal of Tumors of the Parotid Salivary Gland. Surgery 31: 670-682, May 1952.

2. Martin, H. E.: Surgery of Head and Neck Tumors, Haeber-Harper, New York, N.Y., pp. 323-329, 1957.

3. Duthoit. Quoted by Ahlborn (4).

4. Ahlborn, H. E.: Mucous and Salivary Gland Tumors; Clinical Study with Special Reference to Radiotherapy. Acta Radiol. Supplement 23: 1, 1935.

5. Wood, F. C.: Mixed Tumors of Salivary Glands. Ann. Surg. 39: 57, 207, 1904.

6. Pack, G. T. and Ariel, I. M.: Treatment of Cancer and Allied Diseases, 2nd Ed., 3: 306, Paul B. Haeber, Inc., New York, N.Y.

7. Mikulicz, J. Von: Concerning a Peculiar Symmetrical Disease of Lacrymal and Salivary Glands. M. Classics 2: 165-186, 1937.

8. Gaston, E. A. and Ledschi, C. G.: Adenolymphoma of the Parotid and Submaxillary Salivary Glands. Ann. Surg. 123: 1075-1089, 1946.

9. Godwin, J. T.: Benign Lympho-epithelial Lesion of the Parotid Gland: Report of Eleven Cases. Cancer 5: 1089-1103, 1952.

10. Bauer, W. H. and Bauer, J. D.: Classification of Glandular Tumors of the Salivary Glands. A.M.A. Arch. Path. 55: 328-346, 1953.

11. Heinz, I.: The Adenolymphomata. Australian and New Zealand J. Surg. 21: 47-51, 1951.

12. Plant, J. A.: Adenolymphoma of the Parotid Gland. Ann. Surg. 116: 43-53, 1942.

13. Lloyd, O. C.: Salivary Adenoma and Adenolymphoma. J. Path. and Bact. 58: 699-710, 1946.

14. Fein, M. J.: Lympho-epithelioma of the Parotid Gland. Am. J. Cancer. 40: 434-440, 1940.

15. Kay, S.: "Mikulicz's Disease" of the Salivary Glands. Am. J. Clin. Path. 26: 291-296, 1956.

16. Morgan, W. S. and Castleman, B.: A Clinicopathologic Study of "Mikulicz's Disease". Am. J. Path. 29: 471-504, 1953.

17. Bernier, J. L. and Bhaskar, S. N.: Lymphoepithelial Lesions of the Salivary Glands. Cancer 11: 1156-1179, 1958.

18. Bhaskar, S. N. and Bernier, J. L.: Mikulicz's Disease. Clinical Features, Histology and Histogenesis: Report of 73 Cases. Oral Surg. Oral Med. and Oral Path. 13: 1387-1399, 1960.

19. Morgan, W. S.: The Probable Systemic Nature of Mikulicz's Disease and its Relation to Sjogrens' Syndrome. New England J. Med. 251: 5-10 (July 1) 1954.

20. Hemenway, W. G.: The Parotid Gland in Mikulicz's Disease and Sjorgrens' Syndrome. Ann. Otol., Rhin., and Laryng. 9: 849-868, 1960.

21. Goltrz, R. and Good, R. A.: Benign Hyperglobulenemic Purpura. A.M.A. Arch. Derm. 83: 1, 26-39, 1961.

An Obstructing Laryngeal Cyst In A Newborn

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UPPER respiratory tract obstruction is a serious complication particularly in the newborn. Its prompt detection and correction is imperative to prevent dysfunction of the vital systems or death. The anesthesiologist who views more larynges than any other specialist, often is the first to cope with such obstruction—in its diagnosis and treatment. The following history illustrates such a case.

A 21 year old female, para 1, gravida 2, was admitted to the hospital at term and in labor. Her history and physical examination were essentially negative. Labor progressed satisfactorily, and six hours following admission she was anesthetized with cyclopropane, an episiotomy was done, low forceps applied, and a live female child weighing 7 lb. 10 oz. was delivered. The subsequent repair and recovery of the mother from anesthesia were unremarkable.

Two minutes after birth, the anesthetist assigned the infant an Apgar rating of 5.[1] Such a rating is based upon an evaluation of five objective signs; namely heart rate, respiratory effort, muscle tone, response to catheter in nostril and color of infant. Each sign is given a score of 0, 1 or 2. A score of 10 indicates an infant in the best possible condition. The respiratory effort of the infant was slow, irregular and weak, and the extremities remained blue. Little improvement, characterized by less cyanosis and a "grunting cry," followed the institution of mouth-to-mouth breathing. A prompt laryngoscopic examination by the anesthesiologist revealed the etiology. The epiglottis was found to be displaced anteriorly and to the left, almost hidden by a solitary smooth, pink cyst (Fig. 1 and 2). This structure rested like a marble filling the lower portion of the pharynx and covering both the larynx and esophagus. The appearance was that of a ball-valve closing on inspiration.

It was difficult to see how the child could ventilate at all with the pathology present. A cautious attempt to raise the epiglottis and view the larynx was unsuccessful. However, it was possible to pass a small catheter gauge #4 around the posterior and left lateral aspect of the cyst to establish a small airway. Oxygen (600 cc./min.) was then directed through the catheter and the child's color improved immediately. This airway was maintained for about ten minutes while the cyst was further examined. Then the catheter was removed. Surprisingly, the color and respiration remained relatively normal. It was thus felt that the child would be able to ventilate itself adequately in an oxygen-rich atmosphere for the time being until the Otolaryngology Department could examine the patient and institute more specific therapy. The baby was therefore moved to the nursery and placed in an incubator unit. Following a thorough examination, the Otolaryngology Department recommended that the infant be brought to the Operating Pavilion for possible excision of a mass the following morning. X-rays of the hypopharynx suggested the presence of a soft tissue laryngeal mass.

During the first 12 hours of life the infant's condition remained essentially unchanged. Some atelectasis of the left lung was noted. Respiration was reported as "grunting" at times but the skin remained pink. During the second 12 hours, respirations became labored and shallow and the color of the skin deepened to cyanosis. Examination revealed dullness at both lung bases, and a body temperature of 105° F. By 25 hours after birth, the infant was moribund. It was pronounced dead two hours later.

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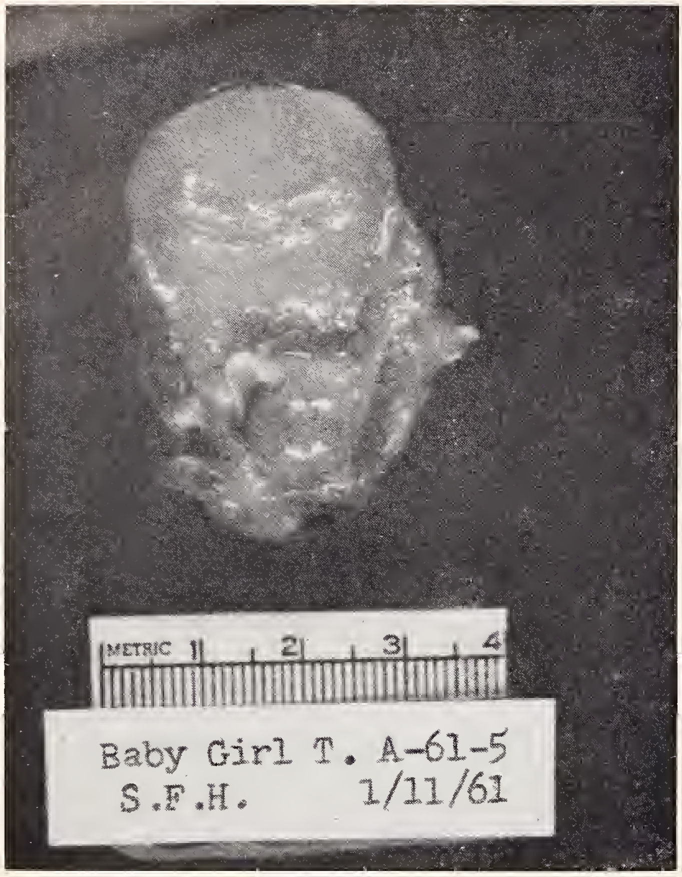

FIGURE I

This is a posterior view showing the cyst in place above the larynx.

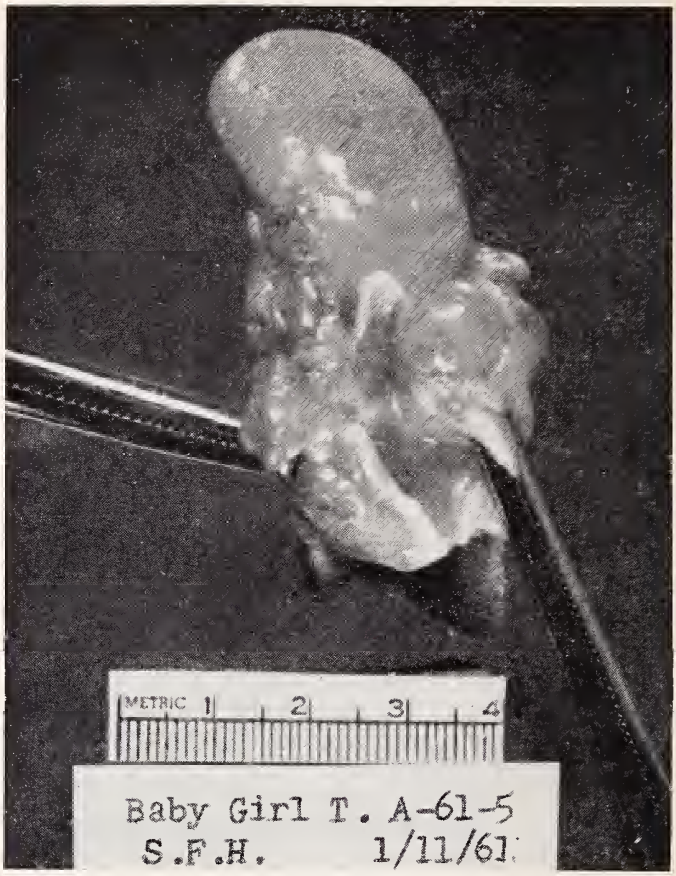

FIGURE II

In this view the cyst has been lifted from the opening of the larynx.

An autopsy report revealed the following.

A. Congenital heart disease
   1. COR biloculare
   2. Truncus arteriosus
B. Erythropoiesis, liver, spleen, adrenal
C. Congenital cyst, right pyriform sinus. Larynx: A 9 mm. clear fluid-filled cyst fills but does not obstruct the inlet of the larynx. It extends from the superior surface of the right vocal cord upward, is covered by mucous membrane from the right lateral quarter of the base of the epiglottis anteriorly and posteriorly, and with mucous membrane continuous from the esophagus and completely replaces the right pyriform sinus. The left pyriform sinus is normal.

Figure I shows the pathological specimen. The posterior surface of the base of the tongue is exposed and the cyst with epiglottis attached is shown resting in the superior opening of the larynx. In Figure II, the larynx has been opened posteriorly and the cyst lifted from its bed.

Discussion

True congenital cysts of the larynx are comparatively rare. Only nine cases were found described in the literature.[2] They are present at birth and become symptomatic at once. Symptoms are those of moderate to severe upper respiratory tract obstruction and muffled to absent cry. The diagnosis may be made by direct visualization and by means of lateral x-ray views of the neck. The treatment is directed toward relief of the respiratory obstruction. Needle aspiration of the cyst may suffice but a tracheotomy has been felt necessary in a majority of the cases reported.[3] External dissection and removal may eventually be indicated.[4]

The prognosis is good if asphyxia can be prevented, and definitive treatment promptly instituted. Early diagnosis and adequate ventilation by the anesthesiologist can be life saving.

How much the cyst contributed to the death of this child is difficult to determine. Clinically, it did not appear to have more than a superficial effect once the baby was fully oxygenated. Its presence, however, represented a definite hazard and the necessity for early recognition and treatment is obvious.

REFERENCES

1. Apgar, V.: Proposal for New Method of Evaluation of Newborn Infant, Anesth. & Analg. 32: 260-267, July-Aug. 1953.

2. Anderson, W. A. P.: Pathology, C. V. Mosby Co., St. Louis, Mo., 1953.

3. Holinger, P. H.: J. Laryngology & Otology (Brit.), LXXV, 1-43.

4. Jackson, C. J. and Jackson, C. L.: Diseases of the Nose, Throat and Ear, Philadelphia, 1959.

Clinical Observations Of The Electrocardiographic Two-Step Exercise Test

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THE diagnosis of coronary insufficiency can usually be made from the medical history alone, in instances where there is a characteristic pain pattern. The problem case is the patient with atypical pain, in whom the physical examination and electrocardiogram are normal. An objective test that would demonstrate or exclude the presence of coronary insufficiency would be valuable in this instance, as well as in detecting coronary artery disease in the asymptomatic individual. The electrocardiographic exercise test, as designed and standardized by Master, has proven to be a valuable adjunct in diagnosis. How much significance one should attach to a positive or negative test, however, is controversial.

The original Master's exercise test prescribed a specific number of ascents over a standard two-step (each 9″ high) performed in 1½ minutes, the number varying with age, sex, and weight.[1] Doubling the number of ascents and increasing the time to 3 minutes has been shown to increase the percentage of abnormal responses without affecting the response in the normal individual.[2] The test is performed as follows: a conventional resting 12 lead electrocardiogram is recorded; the prescribed amount of exercise is undertaken, (Table I) with appropriate leads recorded immediately and at 2-3 minute intervals for 10 minutes or until return to the pre-exercise state. The minimum number of post-exercise leads should include leads 1, 2, V2, V4, and V6. The procedure is without risk to the patient if certain precautions are undertaken. It should not be performed with a history suggesting impending myocardial infarction, i.e.: recent onset of progressive, severe angina; a change in character of suspected angina such that the pain occurs more frequently, is initiated by less effort or occurs at rest, is no longer relieved as promptly with nitroglycerin. It should not be done if the resting electrocardiogram shows any signs of coronary insufficiency (S-T segment depression). The test should be stopped if any chest discomfort develops during the exercise. A single test should be performed in instances where pre-test symptoms are of concern, with the patient returning at a subsequent time for the double exercise test should this be negative. Over 50,000 tests have been done without complications when the above precautions were followed.[3,4]

Care must be taken to insure the accuracy of the technical measurements. A wandering baseline often produces misleading depressions of the S-T segment. The baseline reference point may not always be apparent. It is usually taken at the level of onset of the QRS complex. However, when there is a downward slope to the P-R segment, this point may not be correct; it has been suggested[5] that the downward slope be extended to the point of intersection with a vertical line at the end of the QRS complex, and this be used as the "baseline."

Master's original criteria for an abnormal response were:[1]

(1) Depression of the RS-T segment of more than .5 mm. below the isoelectric line.

(2) Alteration from a positive T wave to a flat or inverted T wave.

(3) A change from a previously inverted T wave to a flat or upright T wave.

(4) Multiple premature beats, widening of the QRS complex, deep Q waves, prolongation of the P-R interval or heart block.

Robb, *et al*,[4,7,8] subdivided S-T segment depression into ischemic S-T segment and S-T junction depression. (Fig. I) The ischemic response is a horizontal or sagging depression of the S-T segment, as opposed to a depression of the S-T junction with a rapid, constant ascent to the baseline. S-T junction depression usually occurs immediately following exercise, returning to the baseline promptly with rest, whereas the ischemic S-T segment depression

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Table I

Number of Trips Performed in Master Double (Three-Minute) Two-Step Exercise Test

Males and (females)

Age in years

WEIGHT (LB.)	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79
90-99	56 (52)	54 (50)	54 (48)	52 (46)	50 (44)	50 (44)	48 (42)	46 (40)	44 (38)	44 (38)	42 (36)
100-109	56 (52)	54 (50)	52 (48)	50 (46)	50 (44)	48 (42)	46 (40)	44 (38)	44 (36)	42 (36)	40 (34)
110-119	54 (50)	52 (48)	50 (46)	50 (44)	48 (42)	46 (40)	46 (38)	44 (36)	42 (36)	42 (34)	40 (32)
120-129	54 (48)	52 (46)	50 (44)	48 (42)	46 (40)	46 (38)	44 (38)	42 (36)	40 (34)	40 (32)	38 (30)
130-139	52 (46)	50 (44)	48 (42)	46 (40)	46 (38)	44 (38)	42 (36)	40 (34)	40 (32)	38 (30)	36 (30)
140-149	50 (44)	48 (42)	48 (40)	46 (38)	44 (38)	42 (36)	40 (34)	40 (32)	38 (32)	36 (30)	36 (28)
150-159	50 (40)	48 (40)	46 (38)	44 (38)	42 (36)	40 (34)	40 (32)	38 (32)	36 (30)	36 (28)	34 (26)
160-169	48 (38)	46 (38)	44 (36)	44 (36)	42 (34)	40 (32)	38 (32)	36 (30)	36 (28)	34 (26)	34 (24)
170-179	46 (36)	46 (36)	44 (34)	42 (34)	40 (32)	38 (32)	36 (30)	36 (28)	34 (26)	34 (26)	32 (24)
180-189	46 (34)	44 (34)	42 (34)	40 (32)	38 (32)	38 (30)	36 (28)	34 (28)	32 (26)	32 (24)	30 (22)
190-199	44 (32)	42 (32)	42 (32)	40 (30)	38 (30)	36 (28)	34 (26)	32 (26)	30 (24)	30 (24)	28 (22)
200-209	42 (30)	42 (30)	40 (30)	38 (28)	36 (28)	34 (26)	32 (26)	32 (24)	30 (22)	28 (22)	28 (20)
210-219	42 (28)	40 (28)	38 (28)	36 (26)	34 (26)	34 (26)	32 (24)	30 (22)	28 (22)	28 (22)	26 (20)
220-229	40 (26)	40 (26)	38 (26)	36 (26)	34 (24)	32 (24)	30 (22)	28 (22)	26 (20)	26 (20)	24 (18)

(This table has been adapted from the report of Master and Rosenfeld, New York State Jour. of Medicine, 61: 1850, 1961.)

is likely to be greatest at 2-3 minutes after exercise and persist for a longer period. In a long range study involving 922 insurance applicants, many of whom were clinically suspected of having coronary disease, and in whom the double standard exercise test was performed, a significant increase in death rate from coronary disease was found only in those individuals with an ischemic S-T segment depression greater than .5 mm. Other criteria for an abnormal response as originally proposed by Master were not considered valid evidence for a diagnosis of coronary insufficiency.

Lepeschkin[3] has stressed the importance of the duration of the S-T segment depression; in coronary insufficiency, the injury current (incomplete repolarization) in the subendocardial muscle of the left ventricle would be expected to persist throughout systole. To quantitate this observation, he measured the interval from the beginning of QRS to the point where the depressed S-T segment crosses the base line (point X), i.e.: QX interval. (Fig. I) A positive test occurs when the ratio of the QX to the QT interval (beginning of QRS to the end of the T wave) exceeds 50 per cent, accompanied by S-T segment depression of .75 mm. or more, and persisting for at least 2 minutes after exercise.

Master[4, 9, 10] has added another indicator for an abnormal response: measurement of the Q-T ratio after exercise (the observed Q-T interval to the expected Q-T for that heart rate). The corrected Q-T interval can be obtained from published tables, or calculated from Bazett's formula (QTc equals a constant, K, accepted as .4, multiplied by the square root of the cycle length). The duration of ventricular systole (Q-T interval) is prolonged in myocardial ischemia, and Master has considered this to be a reliable indication of a positive response irrespective of changes in the S-T segment. The Q-T ratio was found to be greater than 1.08 in 177 of 180 cases with coronary disease, and below this value in 408 of 416 functional cases. This observation could not be confirmed by Robb *et. al.*[7] in their mortality study of life insurance applicants in whom the double exercise test was performed. A preliminary study of the QT ratio was made in 40 cases randomly selected from the ischemic S-T depression group and 31 cases from the S-T junction group. They could not detect any correlation between a prolonged Q-T ratio and a positive or negative exercise test because of the frequency of overlapping between the groups. Their study also demonstrated that the QX/QT ratio in excess of

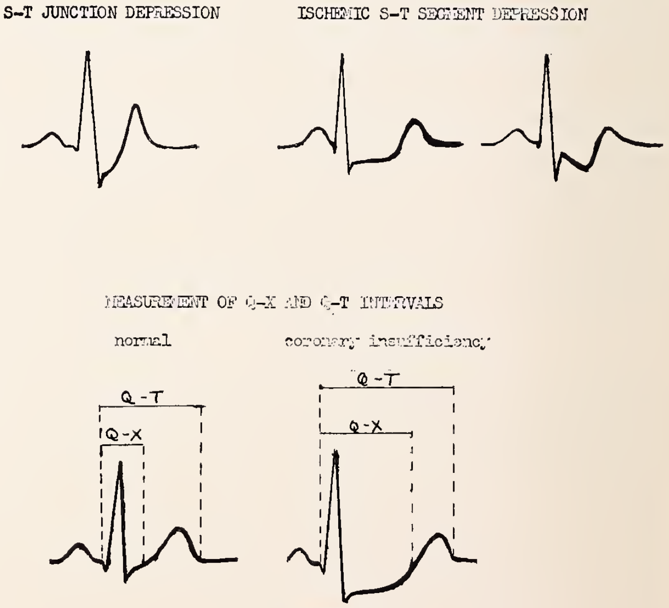

S-T JUNCTION DEPRESSION
ISCHEMIC S-T SEGMENT DEPRESSION
MEASUREMENT OF Q-X AND Q-T INTERVALS
normal
coronary insufficiency
Q-T
Q-X
Q-T
Q-X

Figure I

50 per cent did not necessarily indicate a positive test. Although a ratio in excess of 50 per cent was present in all the ischemic S-T segment depression cases, a similar high ratio was found in half of the S-T junction depression group. Robb has considered S-T junction depression to be an insignificant response to exercise in view of the normal mortality experience in this group. The S-T junction can be influenced by the sympathetic nervous system as demonstrated by a transient depression following the infusion of epinephrine in normal subjects.[11]

Master does not feel that S-T junction depression is always a normal expression of exercise, and has stated that 30 per cent of such cases in their series have organic heart disease.[4] These cases can be distinguished from the normal group if the depth of depression is 2 mm. or more, or if the QX/QT and QT ratio are prolonged. Master's current criteria for a posititve test are:[10]

"1. Any RS-T depression of 2 mm. or more

2. A j depression of relatively long duration, or with a relatively prolonged cardiac contraction. (This is a QX/QT fraction of 50 per cent or more, or a QT ratio of 1.08 or more, or both).

3. Ischemic RS-T depressions, completely horizontal or with 'sag'. (Visual inspection in this group is sufficient to make the diagnosis of ischemic heart disease.)"

Thus, there appears to be uniform agreement that an exercise test is positive that demonstrates an ischemic S-T segment depression of .5 mm. or more with the duration of the depressed S-T segment prolonged such that the QX/QT ratio is greater than 50 per cent. The significance of the prolonged QT ratio and the S-T junction depression is in doubt.

The case reports to follow demonstrate the value and limitations of the double exercise test. The cases are selected from the private practice of the author and represent a cross-section of the case material that one may encounter in the practice of Internal Medicine.

Case No. 1

H.F., a 52 year old man, was first seen in November, 1958. He had no complaints, but desired a complete examination as he recently reached age 50. His previous medical history revealed no serious illness. Cardiovascular system review was remarkable only as follows: for the past 5 years, he noted a transient tightness across the upper chest when walking in cold air after breakfast. This sensation did not occur later in the day, despite more physical activity. In the summer months he was entirely free of distress and enjoyed hiking and swimming as recreation. He minimized this symptom because of its mild and transient nature as well as lack of any change since it was first noted. There was no family history of cardiovascular disease in his parents or six siblings. He was moderately overweight (5′ 9″, 180 lbs.). B.P. was 150/90. Peripheral pulses and vessels in the optic fundi were normal. There was no heart enlargement or murmurs. The electrocardiogram at rest was normal. The electrocardiographic response to the double exercise test was abnormal and indicative of coronary insufficiency (Fig. II). He was seen again in January 1960, having lost 12 lbs. by dieting. There was no change in symptoms. B.P. was 130/85. Repeat exercise test was unchanged, and as before, no chest discomfort developed during or after the test.

The chest tightness in this case is certainly compatible with angina, and one would be justified in making the diagnosis by history alone. However, the degree of distress was so slight that the patient did not offer this as a complaint in his medical history. It was brought out only on routine questioning in his system review. His exercise tolerance was excellent under most circumstances (he undertook a 6 mile hike during the summer of 1959 without distress). A normal resting electrocardiogram is not unusual in angina and has been reported to occur in as high as 40 per cent of cases.[4] The distinctly positive exercise test in this case gives objective evidence to the diagnosis of coronary insufficiency.

Case No. 2

H.S., a 59 year old executive, was seen for a routine medical examination in August, 1961. His past history was unremarkable with the exception of the surgical removal of a kidney stone in 1951. He had enjoyed good health for many years and specifically had no complaints referrable to his cardiovascular system. He appeared to be generally well and had normal build proportions (5′ 11″, 176 lbs.). There was no arcus senilis; vessels of the optic fundi were normal; no cardiac murmurs were present; B.P. was 125/90; peripheral pulses were all normal. The serum cholesterol was moder-

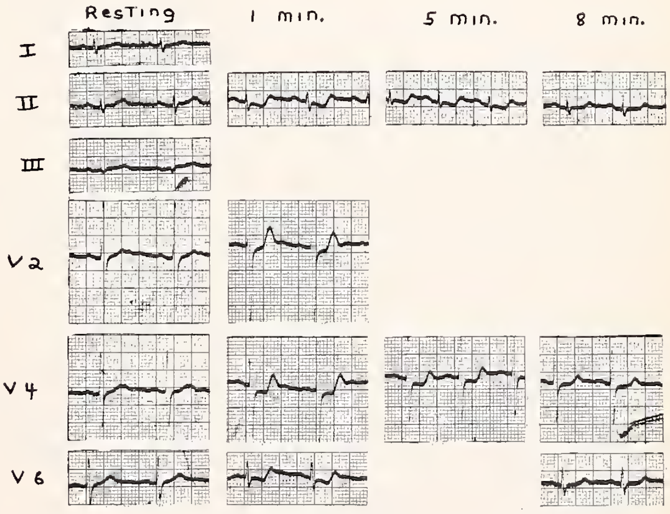


Figure II

H.F. Nov. 1958. Positive double Master's exercise test, demonstrating ischemic, sagging S-T segment depression. QX/QT ratio is .67. QT ratio, calculated in V4, is as follows: resting, 1.03; 1 min., 1.06; 5 min., 1.13; 8 min., 1.08.

ately elevated (305 mg. per cent). The heart size was normal on chest X-ray (cardio-thoracic ratio of 13/32 cm.).

The resting electrocardiogram was normal. After the double exercise test, ischemic S-T segment depression developed in Leads II, V4, and V6, with QX/QT in excess of 50 per cent, and a prolonged QT ratio (Fig. III).

Case No. 3

F.H., a 51 year old business man, was seen in December 1959, because of joint pain. He noted the abrupt onset of pain and swelling in the right big toe; the onset coincided with a business convention where he ate and drank excessively. His history also included four attacks of epigastric distress of a burning nature, lasting an entire day, usually following heavy drinking. His alcohol intake was 2-3 highballs daily; when entertaining customers, or at convention, it would be in excess of one pint a day. He denied shortness of breath or chest pain. He had no substernal or epigastric distress with exertion or excitement. Family history revealed diabetes in his mother.

He appeared moderately obese; his face was ruddy in color; there were capillary telangiectases over the arms and chest; there was no arcus senilis; vessels in the fundi were normal; B.P. was 130/78; heart sounds were regular and strong; no murmurs were heard; the liver was enlarged, with a firm, irregular surface; the appearance of the right big toe was characteristic of gout. His urinalysis showed a 3 plus sugar; a subsequent fasting blood sugar was 170 mg. per cent. X-rays of the gall bladder, upper and lower gastrointestinal tract were negative except for a small sliding esophageal hiatus hernia. Chest X-ray revealed a normal configuration and size of the heart and aorta. The resting electrocardiogram was normal. After exercise, ischemic S-T segment depression was noted in leads II, V4, and V6 (Fig. IV). Diagnoses in this patient are gout, diabetes mellitus, portal cirrhosis, and probable asymptomatic coronary insufficiency as demonstrated by the positive exercise test.

Case No. 4

C.M., a 56 year old man, was seen in August 1960 for a general medical evaluation. His only complaint pertained to a bursitis of the right shoulder. There were no symptoms to suggest angina. He was moderately obese (5′ 11″, 218 lbs.). B.P. was 128/90. The heart was not enlarged to percussion; the sounds were well-transmitted; no murmurs were detected. Peripheral pulses and vessels in the optic fundi were normal.

The electrocardiogram at rest was normal. After a double exercise test he developed a horizontal S-T segment depression of 1.5 mm. in V4 and V6, with a suggested sag to the S-T segment in lead 2. (Fig. V). He was next seen in January 1962. He had been well in the interim, and had not developed angina. His weight, blood pressure, and general examination remained unchanged. A repeat double exercise test failed to reveal the same degree of ischemic change as in 1960. However, a 1 mm. depression of the S-T segment developed in V6, (Fig. VI), compatible with a positive test.

These cases represent positive tests in the absence of clinical coronary disease. It would not be surprising to find coronary atherosclerosis in Case 3 in view of the presence of gout and diabetes. In contrast, Cases 2 and 4 appeared to be in good health. How significant is a positive double Master's test in the absence of clinical signs of coronary artery disease? Applying Master's original criteria, studies in normal individuals revealed false-positive tests in 3 to 6 per cent of a male population.[12,13,14] The incidence of false-positives in women is much greater, and in studies of a mixed population, the figure varies from 16 to 25 per cent[13,15,16] Lepeschkin's study[5] involving 243 healthy persons (101 male, 142 female) found 26 per cent positive using these standards. By altering the criteria for a positive test, and comparing the "normals" with the results in 30 patients with known coronary insufficiency, the following was found to be the most reliable indication of a positive test: maximum S-T segment depression of .75 mm. or more, with return of the depressed S-T segment to the baseline during the second half of the QT interval; S-T segment depression greater than .5 mm. persisting for 2 or more minutes. Nine (3.5 per cent) had false positive tests by these criteria. Of these, 4 had hypertension, known to cause false positive tests in other series,[13] and the others were women past age 40. If the

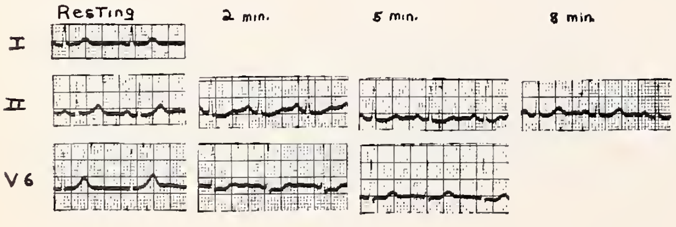


FIGURE III

H.S. Aug. 1961. Horizontal, ischemic S-T segment depression in V6 of .75 mm. QX/QT is .56. QT ratio in Lead 11 is as follows: 2 min., 1.11; 5 min., 1.15; 8 min., 1.04.

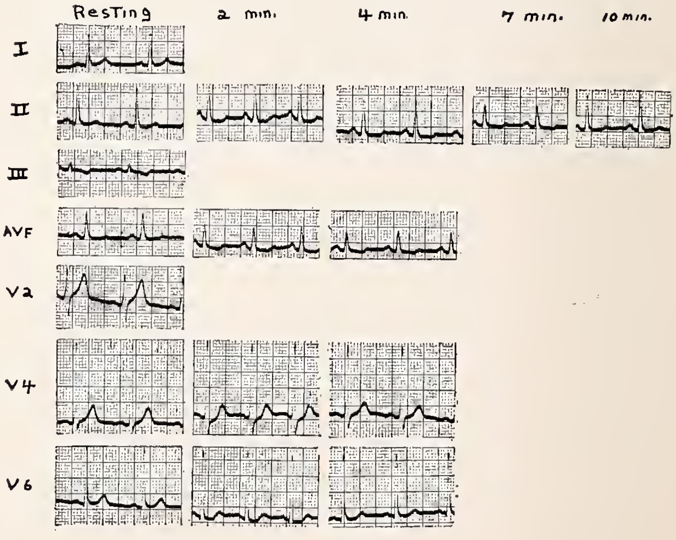


FIGURE IV

F.H. Dec. 1959. Ischemic S-T segment depression after double exercise test. QX/QT is .57. QT ratio is 1.10, measured in V6, 2 min. after exercise.

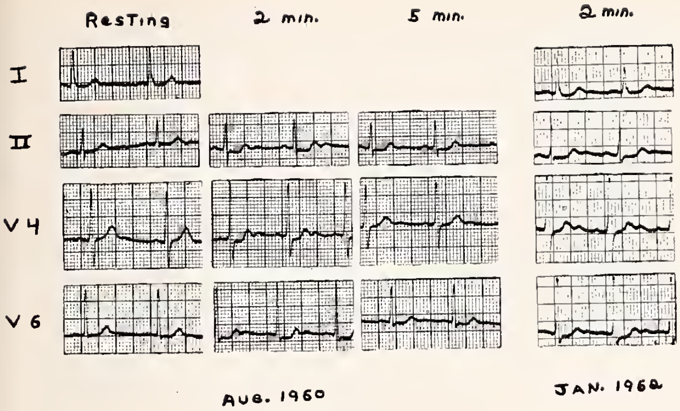


FIGURE V

C.M. Ischemic S-T segment depression after exercise. QX/QT of 65% both in 1960 and 1962 (calculated in V6). QT ratio is difficult to measure because of super-imposed U wave.

criteria for a positive test were made more rigid, i.e.: S.T segment depression 2 mm. or more, persisting for 5 minutes, all false positive tests were eliminated, but over 50 per cent of the true positives in the coronary ischemia group were also eliminated.[5] Robb[7,8] found a correlation between the depth of the ischemic S-T segment depression and the death rate from coronary disease. The mortality experience was 10 times the expected if the depression was greater than 2 mm., 6 times the expected between 1 and 2 mm., and 2 times the expected under 1 mm.

While it is recognized that the exercise test is clinically useful in the evaluation of chest pain syndromes, of what value it is in detecting asymptomatic coronary insufficiency? In a study of 595 air line employees, Leeds et al[13] found only one positive test in the group over age 40 (283 persons), and 10 positive tests in those under 40. Of these, the majority had hypertension. They concluded that the exercise test was not superior to the resting cardiogram as a routine examination study. On the other hand, Brody[17] reported the results of routine double exercise tests of 756 middle aged business executives examined at the Greenbriar Clinic. None of these men had clinical evidence of coronary disease. 280 tests were judged to be positive by Master's original criteria. Of these, however, only 23 had a true ischemic response (3 per cent of the total tested). The majority of this latter group were subsequently observed to develop clinical manifestations of coronary disease. It is reasonable to conclude that a small but significant number of individuals may have a positive exercise test as the only indication of coronary disease, the positive test preceding clinical signs of coronary disease which are likely to develop in the future. Cases 2, 3, and 4 would seem to fit into this category.

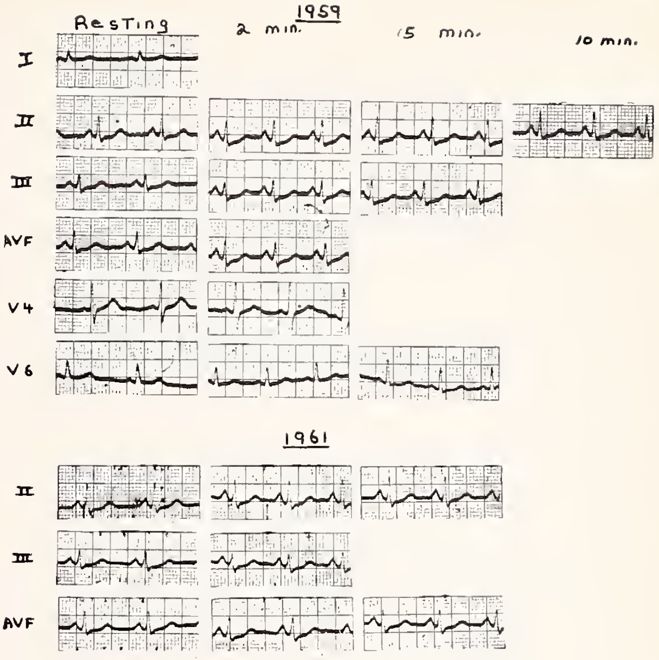


FIGURE VI

C.J. S-T segment depression (junctional) after exercise in 1959. QX/QT is .55, QT ratio is 1.20, measured in Lead 11, 2 min. after exercise. Normal S-T segment in 1961 exercise test. QT ratio (Lead 11, 2 min.) is 1.09.

Case No. 5

C.J., a 53 year old man, was seen in December, 1959 for a routine examination in connection with his company's program for annual executive examinations. He had no complaints. His father died of cancer of the stomach at age 64. A concern for possible cancer prompted him to have a complete gastrointestinal X-ray series and sigmoidoscopy one year ago, all indeterminate. There was no family history of cardiovascular disease. He denied symptoms of chest pain or discomfort on exertion, following meals, or with emotional excitement. His work was sedentary. Exercise consisted of working about his yard in the summer and walking between one-half to one mile a day. He smoked one and one-half packs of cigarettes daily.

He appeared tall, thin (6′ 2″, 160 lbs.), and in good health. There was no arcus senilis. Optic fundi were normal, B.P. was 138/70. No cardiac murmurs were present. Peripheral pulses were intact. Chest X-ray revealed a normal appearance to the heart and aorta; the cardio-thoracic ratio was 13/30.4. The resting electrocardiogram was normal. Depression of the S-T segment developed after exercise (Fig VI).

This case is presented to demonstrate the difficulty that one may encounter in interpreting the significance of the S-T segment depression. The initial exercise test suggested asymptomatic coronary insufficiency, with the coronary stenosis located in the posterior wall of the left ventricle. This was supported by a QX/QT of 55 per cent, and a QT ratio of 1.20. However, the contour of the depressed S-T segment, with its initial upsweep, is more in keeping with an S-T junction depression, and should therefore not be considered a positive test.

The repeat exercise test in 1961, performed under similar conditions, revealed a normal appearing S-T segment after exercise, supporting the interpretation of the initial test to be a benign S-T junction depression.

Case No. 6

B.D., a 50 year old office worker, was initially seen in February, 1956 with the following complaints: burning discomfort in the lower substernal area, usually occurring one hour after meals and relieved with antacids; twinges of pain in the precordium and left arm, accompanied by palpitations and related to nervous tension but not to exertion. These symptoms had been present for the past few years. Physical examination was entirely normal; B.P. was 125/80. Electrocardiogram was normal. An upper gastrointestinal X-ray series revealed moderate gastro-duodenal hypertonus but was otherwise indeterminate. The clinical impression was an anxiety state with gastrointestinal manifestations. He was satisfactorily treated with reassurance, a bland diet, antacids and mild sedation.

In September, 1957, he had a recurrence of the substernal burning pain, but of a different character; the pain would radiate to the throat and down both arms to the wrists; it would be initiated by walking short distances, and relieved with rest. The pain began one week prior to this visit, with the initial episode severe, lasting one-half hour, and followed by transient weakness. Physical examination was normal, but his electrocardiogram (Fig. VII) revealed signs of anterior wall myocardial ischemia. He was treated with bed rest at home for three weeks, and gradual increasing activity over the following two months. His symptoms disappeared, and with moderate restriction in activity, he was free of pain. A repeat examination in October, 1958 included an exercise test which was stopped after 30 trips because of mild substernal pain which promptly disappeared with rest. The post-exercise tracing revealed only an equivocal depression of the S-T segment in leads II and V6 (Fig. VII). A repeat study in October, 1959 and at yearly intervals since, demonstrated a normal double exercise test, and the test completed without chest pain (Fig. VII). He continues to have twinges of chest pain with emotional excitement, but no pain on ordinary physical activity.

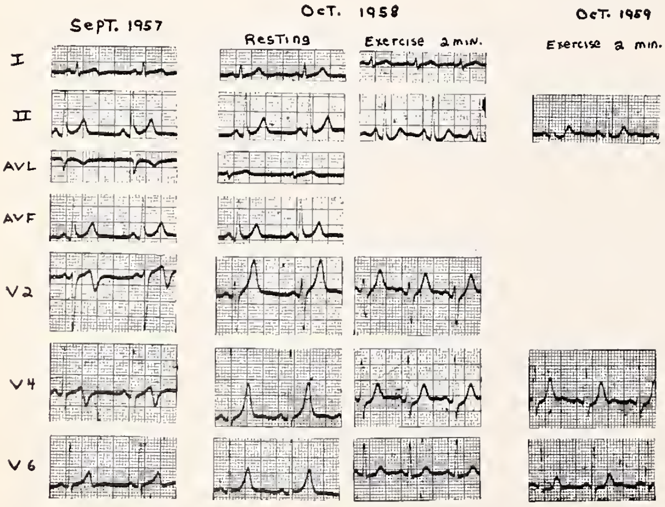


Figure VII

B.D. Evidence of anterior wall myocardial injury in 1957. Normal response to exercise in 1958 and 1959.

Case No. 7

E.S., a 63 year old salesman, was seen in October, 1959 for the evaluation of chest pain. Three months prior, he developed an oppressive pain across his anterior chest radiating to the left shoulder and down the left arm to his hand. The pain occurred soon after lunch, while walking to one of his calls, and lasted for one hour. He saw his physician, and was subsequently placed on bed rest at home for one month. He then returned to work, experiencing similar but less severe pain if he over-exerted, relieved with nitroglycerin and rest. For the past two weeks, he noted recurrent pain and pressure in the lower substernal area, about two hours after eating, relieved partially with antacids. During this time, he had an inconstant ache and numbness in the left hand, not related to exertion or helped by nitroglycerin. Past medical history indicated periods of indigestion for many years, with similar character to his recent pain, but without involvement of the arm or hand. An upper G-I series in 1955 was reported as normal.

Physical examination was entirely normal with the exception of a blood pressure of 160/85. Electrocardiogram at rest and after double master's exercise was normal; the test did not cause any pain. A G-I series was subsequently obtained, demonstrating an active duodenal ulcer.

The initial history suggested coronary artery disease with a possible myocardial infarction and subsequent angina. This was confirmed by a subsequent review of the electrocardiogram taken during the period of bed rest in July, 1959. (Fig. VIII). Changes in the T waves in Leads 2, 3, and AVF indicated posterior wall myocardial ischemia. The recent symptoms which prompted his visit were attributed to his ulcer and were promptly relieved with appropriate therapy. However, he continued to have characteristic angina on exertion, especially climbing hills or walking soon after lunch.

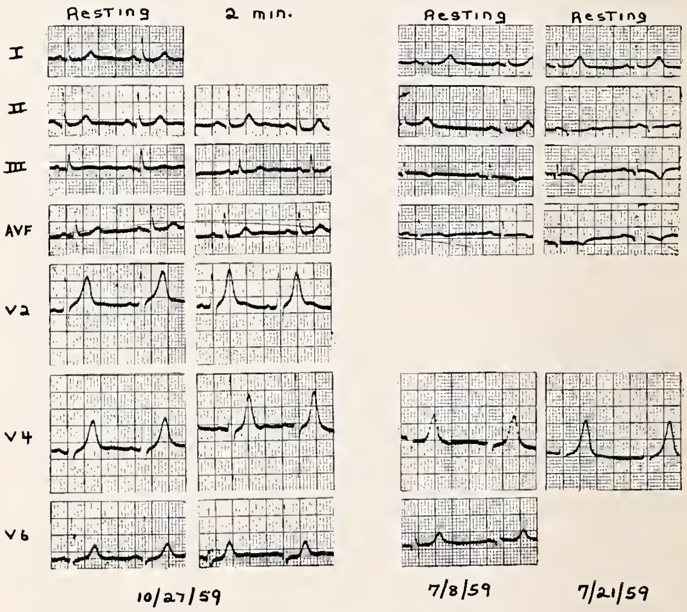


Figure VIII

E.S. Normal response to double exercise test; earlier evidence of posterior wall myocardial ischemia.

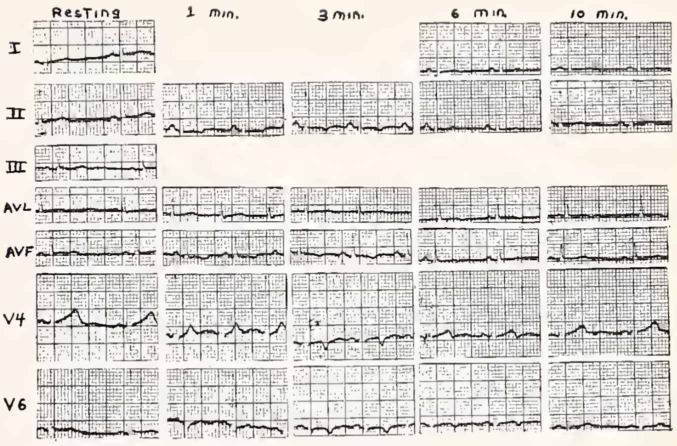
A negative double Master's test cannot be used as evidence to exclude the presence of coronary disease. If the degree of coronary narrowing or sclerosis is not marked, the coronary flow after stress will be adequate and the cardiogram remain normal. If a previous myocardial infarction has occurred, with the development of adequate collateral circulation, and the absence of marked sclerosis elsewhere in the coronary circulation, the exercise test may be normal.[3] As a corollary to this, the Master's test can be useful in determining the ability of the individual who has recovered from a myocardial infarction to withstand the stresses that returning to work and normal living habits impose upon him. Patient B.D. is a good example of this concept.

Lepeschkin[3] has stated "A completely normal electrocardiographic test indicates with great probability that no major coronary stenosis is present, or if it is present, it is well compensated by collateral circulation". Patient E.S. demonstrates coronary artery disease with a previous posterior wall myocardial infarction, now having symptomatic coronary insufficiency with a negative double exercise test. The angina, which occurs after exertion in a postprandial state, would suggest a high degree of coronary stenosis, even though at the time of the exercise test, he did not develop pain. The clinical implication in this case is that a negative double Master's test may occur in the presence of advanced coronary disease with angina.

It has been suggested that the exercise test not be standardized,[18] rather the individual be allowed to continue the exercise until pain develops. This extra effort may have produced electrocardiographic changes of coronary insufficiency in Case. 7. However, there are many patients who can walk or climb without distress, but experience angina under other circumstances. Case 1 illustrates this point. His angina occurred only when walking into the cold air after breakfast. Striking ischemic changes developed in the post-exercise cardiogram even though he had no pain during or after the test.

Case No. 8

N.B., a 49 year old office worker, was first seen in May, 1959 for a routine medical check-up. He offered no complaints and his cardiovascular system review was unremarkable. His build was short and stocky (5′ 6″, 172 lbs.). Blood pressure was 125/90. Examination of the heart and the electrocardiogram were normal. He was re-examined in April, 1961 and as before, was asymptomatic. Examination differed only in a weight gain of 15 lbs. and a blood pressure of 150/100. His resting electrocardiogram now demonstrated a lower amplitude of the T-wave in leads 1, II, and V6, and minimal inversion of the T-waves in AVL. After a double exercise test, changes in the T-waves without S-T segment displacement developed (Fig. IX).



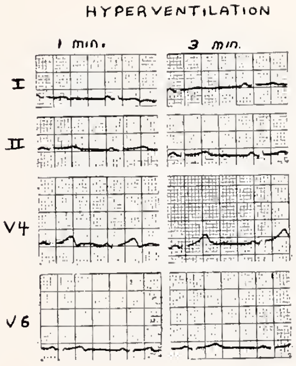


FIGURE IX

N.B. April 1961. T wave inversion after double exercise test; reproduction of T wave changes with hyperventilation (70 deep breaths in one minute). QT ratio is 1.00.

The duration, depth and "coved" contour of the T-wave inversions are impressive in this case. However, the absence of S-T segment displacement, the normal QT ratio, and the reproduction of the T-wave changes with hyperventilation would indicate that the response is a "false-positive" and associated with hyperventilation rather than coronary artery disease. T-wave inversions after exercise may occur with coronary disease, but as an isolated finding, it is a poor indicator.[6] In Lepeschkin's group of 30 persons with known coronary insufficiency,[5] only one subject developed inverted T-waves without S-T segment depression after exercise.

Summary

The usefulness and limitations of the double two-step exercise test have been discussed along with representative cases. The following conclusions have been drawn:

1. The exercise test is of greatest value when it is positive. Rigid criteria for a positive test must be used. The most reliable indication of a positive test is an ischemic (horizontal or sagging) S-T segment depression of .5 mm. or more, accompanied by a prolongation of the duration of the depressed S-T segment (QX/QT ratio in excess of 50 per cent), persisting for at least 2 minutes after exercise. The greater the depth of depression, the greater the likelihood (and severity) of coronary insufficiency. Asymptomatic persons, as well as those

with a suggestive anginal syndrome, have a high probability of coronary insufficiency, when the double two-step test is positive.

2. A negative test does not exclude the presence of coronary athersclerosis, as a negative test may occur after a healed myocardial infarction. A negative test should make the diagnosis of coronary stenosis or insufficiency unlikely, but if there is a characteristic anginal syndrome, more reliance should be placed on the history than on the negative test.

REFERENCES

1. Master A. M., Friedman, R., and Dack, S.: The electrocardiogram after standard exercise as a functional test of the heart. Am. Heart Jour., 24: 777, 1942.
2. Master, A. M., Field, L. E., and Donoso, E.: Coronary artery disease and the "two-step exercise test." New York State Jour. of Med., 57: 1051, 1957.
3. Lepeschkin, E.: Exercise tests in the diagnosis of coronary heart disease. Circulation, 22: 986, 1960.
4. Master, A. M. and Rosenfeld, I.: The two-step exercise test brought up to date. New York State Jour. of Med., 61: 1850, 1961.
5. Lepeschkin, E. and Surawicz, B.: Characteristics of true-positive and false-positive results of electrocardiographic Master two-step exercise tests. New Eng. Jour. of Med., 258: 511, 1956.
6. Robb, G. P., Marks, H. H., and Mattlingly, T. W.: The value of the double standard two-step exercise test in the detection of coronary disease. Trans. of the Assoc. of Life Ins. Medical Directors of America, 40: 52, 1956.
7. Robb, G. P. and Marks, H. H.: The post-exercise electrocardiogram in the detection of coronary disease: A long term evaluation. Trans. of the Assoc. of Life Ins. Med. Directors of America, 45: 81, 1961.
8. Robb, G. P. and Marks, H. H.: Evaluation of type and degree of change in postexercise electrocardiogram in detecting coronary artery disease. Proc. Soc. Exp. Biol. and Med., 103: 450, 1960.
9. Master, A. M. and Rosenfeld, I.: QX/QT and QT ratios in the diagnosis of ischemic heart disease. Circulation, 24: 991, 1961.
10. Master, A. M. and Rosenfeld, I.: Clinical application of the "two-step" exercise test. J.A.M.A., 178: 283, 1961.
11. Lepeschkin, E., Marchet, H., Schroeder, G., Wagner, R., dePaula e Silva, P., and Raab, W.: Effect of epinephrine and norepinephrine on the electrocardiogram of 100 normal subjects. Am. J. Cardiol., 5: 594, 1960.
12. McGurl, F. J. and Dross, R. L.: The double Master test—a study on 247 normal men. Trans. Assoc. Life Ins. Med. Dir. Amer., 40: 38, 1956.
13. Leeds, M. F. and Kroopf, S. S.: The exercise test in electrocardiography. Calif. Med., 79: 36, 1953.
14. Scherlis, L., Sandberg, A., Wener, J., Dworkin, Y., and Master, A.: Effect of single and double "two-step" exercise test upon the electrocardiogram of 200 normal persons. Jour. Mt. Sinai Hosp., 17: 242, 1950.
15. Thomas, C. B.: Cardiovascular response of normal adults to exercise as determined by the double Master two-step test. Bull. Johns Hopkins Hosp., 89: 181, 1951.
16. Rosen, I. L. and Gardberg, M.: Effects of non-pathologic factors on the electrocardiogram 1) . Results of observations under controlled conditions. Am. Heart Jour., 53: 494, 1957.
17. Brody, A. J.: Master two-step exercise test in clinically unselected patients. J.A.M.A., 171: 1195, 59.
18. Scherf, D. and Schaffer, D. I.: The electrocardiographic exercise test. Am. Heart Jour., 43: 927, 1952.

We have seen that there is no absolute truth apart from mathematical principles; in all natural phenomena, the principles from which we start, like the conclusions which we reach, embody only relative truths. The experimenter's stumbling block then consists in thinking he knows what he does not know and in taking for absolute, truths that are only relative. Hence, the unique and fundamental role of scientific investigation is reduced to doubt, as great philosophers moreover have already proclaimed.

—Claude Bernard, *An Introduction to the Study of Experimental Medicine, 1927.*

A Case Of Acquired Agammaglobulinemia: Its Association With Bronchiectasis

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In 1952 Bruton[1] described the first case of agammaglobulinemia.* Since his report many other documented cases have appeared in the literature and with these a better understanding of this disorder has evolved. Janeway, Apt and Gitlin[2] have subdivided this entity into congenital and adult groups. This classification, however, should not be used arbitrarily to group cases on the basis of the age of onset of symptoms alone. Actually, in the congenital group inheritance is through a sex-linked, recessive trait which like hemophilia appears in males. The quantitative measurement of the serum gamma globulin in this group is less than two per cent of the total globulin or 30 mg. per 100 cc. of serum. In the adult or acquired group both sexes are involved and the gamma globulin is at a higher level. The acquired type may be further subdivided into a group with a gamma globulin level less than 150 mg. per 100 cc of serum and a more recently described group with a subnormal range of 280 to 620 mg. per 100 cc.[3,4] The normal range is 700 to 1,200 mg. per 100 cc.[5] In many instances it is difficult to decide whether a case is congenital or acquired. In both groups the basic defect is an impaired or absent antibody response to antigenic stimulation with a resultant susceptibility to recurring bacterial infections and particularly to the pneumococcal organism. Most cases fall into three syndromes: (1) Recurrent pulmonary infections, (2) Splenomegaly and hypersplenism and (3) Steatorrhea. The syndrome of repeated pulmonary infections is the most common and bronchiectasis has been found to be a frequent finding in this group with aggammaglobulinemia.

The following case is reported because it characterizes the syndrome of recurrent pulmonary infections and associated bronchiectasis in a patient with hypogammaglobulinemia of the acquired type.

Case Report

H. W. is a thirty-one year old, white, married male who had mumps, measles and chickenpox as a child. He gave a history of having had pneumonia once at age six. He had three episodes of pneumonia during his teens. In 1938 he had generalized adenopathy and was hospitalized at the New England Deaconess Hospital. There a left inguinal lymph node was removed for questionable Hodgkins disease. On pathological exam no definite diagnosis was made. He was apparently well thereafter and served in the United States Army without major illness.

On January 21, 1948 he was admitted to the Veterans Administration Hospital in Montgomery, Alabama because of a chronic cough of 2 years duration which was productive of one-half cupful of yellow-green sputum per day, hoarseness, and intermittent fever. Physical examination disclosed

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* *The terms agammaglobulinemia and hypogammaglobulinemia are interchanged in this paper, although in the strictest sense their differences are obvious. It is doubtful that there are true agammaglobulinemic individuals when immunochemical studies are done.*

Reviewed in the Veterans Administration Hospital, West Haven, Connecticut and the Department of Internal Medicine, Yale University School of Medicine. The statements and conclusions published by the author are his own and do not necessarily reflect the opinion of the Veterans Administration.

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definite clubbing of the fingers, bean-sized nodes in axillary, inguinal and cervical areas, rales in the left lower lobe and decreased breath sounds over this area. Sputum cultures for acid fast organisms were negative, no mention of cultures for bacterial pathogens was made. A chest X-ray showed "interstitial pneumonitis of the left lower lobe." A bronchogram revealed bronchiectasis of the basal segment of the left lower lobe. The patient was subsequently transferred to Kennedy Veterans Administration Hospital in Memphis, Tennessee for evaluation for surgery for bronchiectasis. Laboratory workup there revealed a leucocytosis of 13,000 the total protein was 6.2 gm per 100 cc of serum and the albumin globulin ratio was 1.6. X-rays of the sinuses revealed right maxillary and left anterior ethmoid sinusitis. Pseudomonas aeruginosa was cultured from purulent bronchial secretions obtained at bronchoscopy. Again cultures for tubercle bacilli were negative. On February 24, 1948 a segmental lobectomy of left basal segments was done. Microscopic exam of removed lung tissue was consistent with bronchiectasis.

On August 1, 1957 the patient was referred to the West Haven Veterans Administration Hospital because of a shadow in the right lung. He had been working as a hatter in the interim. There had been a chronic cough which had progressed and was productive of one cupful of greenish sputum daily. A history of frequent, recurrent colds, easy fatigability and an unspecified weight loss was obtained. Four days prior to admission he developed feverishness, a right-sided, pleuritic chest pain, dyspnea at rest and ankle swelling. His temperature on admission was 100.4°, blood pressure 110/54, respirations 24 and weight 123. He was a thin, white male who appeared chronically ill. There was a perforated right tympanic membrane. There were small, firm lymph nodes palpable in the anterior cervical, supraclavicular and right axillary regions. A right thoracotomy scar was observed. The right anterior and posterior lung bases were dull on percussion. A pleural rub was heard over the right chest anteriorly and rales were heard over the distribution of the right middle and lower lobes. Marked clubbing of the fingers and toes and 2 plus pretibial and ankle edema were present. A sputum culture showed predominantly pneumococci. Blood counts and urinalysis were completely normal, the sedimentation rate was 15. A chest X-ray on admission revealed a large, homogeneous density with a fluid level which indicated the presence of an abscess in the right middle lobe. The patient received penicillin from August 1, 1957 thru September 9, 1957 with gradual defervesence, decrease in sputum production and progressive resolution of the abscess. Bronchoscopy had revealed no obstructing lesion of the right middle lobe bronchus and bronchography revealed atelectasis of the right middle lobe.

After discharge from the West Haven V A Hospital on September 26, 1957, H. W. was followed in the out-patient clinic at periodic intervals. Within a period of six months he presented himself at the clinic four times in the throes of a respiratory infection. Pneumoncocci in heavy growth was cultured from the sputum on each occasion. Chest X-rays showed no essential changes. Each bout was successfully treated with either tetracycline or penicillin tablets on an outpatient basis. In April, 1958, the thought occurred to obtain protein studies with an electrophoretic pattern. The total protein was 5.89 gm. per cent. The alubumin was 4.4 and the globulin was 1.49. The paper electrophoretic pattern revealed 8 per cent gamma globulin and because of this finding the patient was rehospitalized on July 1, 1958 for further immunological study.

On this admission, examination revealed the blood pressure to be 108/60, pulse, 84; respirations, 18; and temperature, 100°. There was slight injection of the nasal mucosa. There was some asymmetry of chest expansion, the right showing a greater excursion than the left. Auscultation revealed rhonchi in both lung fields but no rales or wheezes. Bilateral shotty nodes were palpable in the inguinal areas. The liver was percussed two fingers below the right costal margin and several observers felt resistance in the left-upper quadrant and a palpable spleen. Marked clubbing of the fingers and toes was again noted.

A flat film of the abdomen suggested the presence of hepatosplenomegaly. A liver biopsy was normal. A bone marrow taken from the iliac crest was normal except for the absence of plasma cells. A review of the inguinal lymph node biopsy made in 1938 at the New England Deaconess Hospital showed changes compatible with chronic inflammation. A moderate number of plasma cells were seen.

Laboratory Data

The hemoglobin was 14.6 gm. per 100 ml.; the hematocrit was 48; the erythrocyte sedimentation rate, corrected, was five; a white blood count was 4,100, with 48 per cent neutrophils, nine per cent band forms, 42 per cent lymphocytes and 1 per cent eosinophiles. The urine was negative for sugar and protein; the specific gravity was 1.020; the sediment contained three to four white cells per high-power field. A stool specimen was negative for occult blood. The alkaline phosphatase was 3.7 Bodansky units. The prothrombin content was 90 per cent. Sputum culture grew out predominantly pneumococci, some neisseria species and alpha streptococci were also present. Cultures of the sputum for fungi and acid fast bacilli were negative. First and second strength PPD skin tests were negative. A coccidioidin skin test was negative. A histoplasmin skin test showed a 15 by 8 mm induration after 24 hours and a 25 by 25 mm induration at 48 hours. Complement fixation tests to antigen 1 (histoplasmin) and antigen 2 (yeast phase cells) were nonreactive.

Immunological Studies

1. Typhoid H and O agglutinations were negative both before and after typhoid immunization.

2. Paratyphoid A and B agglutinations were negative both before and after paratyphoid immunization.

3. A Schick test was positive and remained positive after the administration of 0.5 ml. of diphtheria toxoid.

4. Type and cross matching of the patient's blood revealed type O, posititve Rh blood. Determinations for isohemagglutinins a and b were negative.

The patient was discharged from the hospital on July 5, 1958 and since has been followed on an out-patient basis at the West Haven Veterans Administration Hospital at periodic intervals. Initially gamma globulin injections in a strength of 0.1 cc per kilogram of body weight were given on a monthly basis. Later he was switched to daily prophylactic tetracycline and more recently penicillin tablets. Despite these measures one or two upper respiratory infections occur each month and on monthly culture of his sputum, a heavy growth of pneumococci is always present. Periodic chest X-rays, however, have revealed no evidence of new pneumonitis. He has been gainfully employed as a hatter with only a few absent days from work since the institution of treatment.

Discussion

Historically this case would fall into the acquired hypogammaglobulinemic group, since, discounting the one episode of pneumonia at age 6, infancy and childhood were not marked by a series of unusual bacterial infections. More important in classifying this case as acquired was the quantitative study of the serum proteins by electrophoresis. This revealed the gamma globulin level to be 8 per cent of the total protein or 471 mg. per 100 cc of serum, a level too high for this case to be considered as congenital in type.

It is interesting to note that the diagnosis of hypogammaglobulinemia in this case was established only after a decade of severe, recurrent, major pulmonary infections. This would illustrate the importance of keeping this entity in mind for any patient with recurrent, bacterial pulmonary infections. If bronchiectasis is present there is further indication to study the patient for agammaglobulinemia. The literature contains many case reports which associate agammaglobulinemia with bronchiectasis. Janeway[2] in 1953 described two cases of bronchiectasis among nine cases of agammaglobulinemia. Jean[6] in 1953 also described two cases of bronchiectasis associated with congenital agammaglobulinemia. A single case was reported by Sanford et al[7] and another by Zinneman et al[8] in 1954. In 1955 Young et al[9] described one case of bronchiectasis among four adult cases of agammaglobulinemia. Collins and Dudley[10] in 1955 reported two cases of bronchiectasis and agammaglobulinemia in adult females. Among eight cases of agammaglobulinemia reviewed by Good and Mazzitello[11] in 1956 one individual had established bronchiectasis. In 1958 Cook and Melrose,[12] Firkin and Blackburn,[13] and DeMeulemeester[14] each reported single cases of this association. These reports suggest that all cases of bronchiectasis should be screened for hypogammaglobulinemia.

To establish the diagnosis of aggammaglobulinemia it is not enough to order a total protein and albumin-globulin fractions of the serum. An electrophoretic pattern or an immunochemical study to quantitate the gamma globulin fraction is necessary. Then come the definite tests to demonstrate unresponsiveness to antigenic challenge. In our case no antibodies could be demonstrated before or after typhoid and paratyphoid immunization and the Schick test remained positive despite dipththeria toxoid administration. Also isohemagglutinins a and b were absent from the blood despite the fact that the blood type was O.

One other situation must always be considered in an individual who presents a history such as in the case of H. W. This is the "dysgammaglobulinemic syndrome". Patients with this disorder are clinically quite similar to the agammaglobulinemics, i.e., low isohemagglutinin titers and poor antibody response to typhoid vaccine, but electrophoresis may reveal discrete, homogeneous gamma globulin peaks. This would imply that the reticuloendothelial system is elaborating an abnormal gamma globulin which has no protective antibody properties against bacterial infections. This abnormal protein may be replacing effective gamma globulin production or it may be binding the effective antibodies. Specific diseases which may or may not be associated with abnormal gamma globulin production include multiple myeloma, cryoglobulinemia, macroglobulinemia, lymphoma and chronic lymphatic leukemia.

Why the pneumococcus should be the predominant pathogen in these cases is not clear on reviewing the literature. Perhaps this is a manifestation of the prevalence of pneumococci in the ororespiratory tract. One may also speculate that the antigenic structure of the pneumococcus with its specific capsular polysaccharides, to which the pathogenicity of this organism can be ascribed, requires a specific humoral immune mechanism. It is known that phagocytosis of the encapsulated organism is impaired in the absence of specific antibodies whereas in experimental animals nonencapsulated pneumococci are readily phagocytized even in the absence of these antibodies.[15]

One final observation made in our patient was that the prophylactic administration of antibiotic either as penicillin or tetracycline seemed to afford more protection against infection than the monthly administration of parenteral gamma globulin. This may have been due to the inadequacy of the dose of gamma globulin in the strength of 0.1 cc per kilogram of body weight. At any rate in the management of these cases it may be more practical to give prophylactic antibiotics than gamma globulin, the supply of which is limited and the cost almost prohibitive.

Summary

A typical case of acquired hypogammaglobulinemia with recurrent pulmonary infections is presented. The frequent finding of bronchiectasis in association with hypogammaglobulinemia is emphasized. It is therefore suggested that patients with bronchiectasis be screened for this disorder. Methods of establishing the diagnosis of agammaglobulinemia are outlined. The similarity to the dysgammaglobulinemic syndrome is noted. A comment on the management of the agammaglobulinemic patient is made.

Acknowledgment

The author wishes to express his gratitude to Dr. Harold O. Conn, who was primarily responsible for the immunological study of the patient, and Dr. Nicholas D. D'Esopo for his helpful suggestions.

REFERENCES

1. Bruton, O. C.: Agammaglobulinemia. Pediatrics, 9: 722, 1952.
2. Janeway, C. A., Apt, L., and Gitlin, D.: Agammaglobulinemia. Tr. Am. Phys., 66: 200, 1953.
3. Kushner, D. S., Dubin, A., Donlon, W. P., and Bronsky, D.: Familial hypogammaglobulinemia, splenomegaly and leucopenia. Am. T. Med., 29: 33, 1960.
4. Gordon, B. D. and Spencer, S.: Hypogammaglobulinemia. J.A.M.A., 174: 269, 1960.
5. Wallenborn, P. A.: Agammaglobulinemia Laryngoscope, 70: 1, 1960.
6. Jean, R.: Hypo'ou agammaglobulinemic isolé chez l'enfant. La Pressé Medicale, 61: 40, 1953.
7. Sanford, J. P., Favour, C. B., and Tribeman, M. S.: Absence of serum gamma globulins in an adult. New Engl. J. Med., 250: 1027, 1954.
8. Zinneman, H. H., Wendall, H. H., and Heller, B. I.: Acquired agammaglobulinemia. J.A.M.A., 156: 1390, 1954.
9. Young, I. I., Wolfson, W. Q., and Cohn, C.: Agammaglobulinemia in the adult. Amer. J. Med., 19: 222, 1955.
10. Collins, H. D. and Dudley, H. R.: Agammaglobulinemia and bronchiectasis. New Engl. J. Med., 252: 255, 1955.
11. Good, R. A. and Mazzitello, W. F.: Chest disease in patients with agammaglobulinemia. Dis. Chest, 29: 9, 1956.
12. Cook, I. A. and Melrose, A. G.: Acquired hypogammaglobulinemia in an adult. Scot. Med. J., 3: 135, 1958.
13. Firkin, B. G. and Blackburn, C. R. B.: Congenital and acquired agammaglobulinemia. Quart. J. Med., 27: 187, 1958.
14. De Meulemeester, F.: Hypogammaglobulinemia and bronchiectasis. Nederl. Tijdschr. Geneesk., 102: 1076, 1958.
15. Smith, D. T. and Martin, D. S.: Zinsser's Textbook of Bacteriology, Ninth Ed., p. 299.

> *Let not your conception of the manifestation of disease come from words heard in the lecture room or read from a book. See and then reason and compare and control. But see first. No two eyes see the same thing, no two mirrors give forth the same reflection. Let the word be your slave not your master. Live in the ward.*
>
> —William Osler, *Aphorism of William Osler.*

Surgery In Russia

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In the light of spectacular achievements in space flight, one cannot help but be curious as to the status of clinical medicine in the Soviet Union. It was my privilege to visit that country in the Fall of 1959 as a tourist and again in May 1960 as an invited delegate to the Soviet Surgical Congress.[1] On each occasion I spent two weeks there, most of it in Moscow.

In order to understand clinical medicine observed in the various institutes one should know something about the basic medical education. Following basic general schooling in the gymnasium, the Russian student is selected through competitive examinations for a scholarship in one of the 85 medical schools. The classes are up to ten times the size of American classes and there appear to be significantly fewer large urban hospitals capable of adequate clinical instruction. This assumption is derived from the fact that there are approximately 25,000 hospitals in the USSR as compared to a little over 9,000 in the United States, excluding military hospitals.[2] Nevertheless, in the United States there are a few more beds, the total number being in the neighborhood of 1.4 million.

Since essentially everyone in the Soviet Union is an employee of the state, medical students are no exception and receive from about $34 a month up to $75 through their 6 years of medical curriculum. In addition to the standard type of medical schools there are also Pediatric Institutes and military medical schools although much fewer in number. It appeared that there is significantly less personal attention and direct clinical instruction to the medical students from my brief encounter with the students in the First Moscow Medical Institute and in the First (Pavlov) Medical Institute in Leningrad. Lectures to large groups of students and observation of major surgery by means of closed circuit television were some of the methods aimed at overcoming this problem.

The student on graduation is termed "physician" rather than M.D. The latter is a rather exalted degree acquired only after 10 or 12 years experience in a special field and after successful defense of a thesis before a critical committee of the USSR Academy of Medical Sciences. The physician is a general practitioner, apparently far less equipped than the American equivalent and is paid only about $90 a month. The State urges all students to spend time in the country hospitals although about 10 per cent may directly continue speciality training for two or three years. This is also available to a small selected group (approximately 10 per cent) who take competitive examinations after 3

Figure I

Professor V. V. Kovanov (left) poses in front of one of the buildings of the First Moscow Medical Institute with U. S. Surgeon, Dr. Michael E. DeBakey and D. D. Venedictov of the USSR Ministry of Health, in May 1960.

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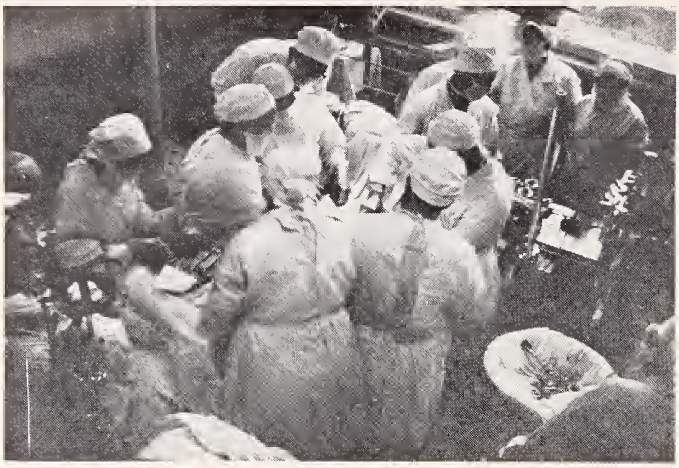

Figure II
Professor Petrovsky (back to camera) operates on a patient with an aneurysmal dilatation of the wall of the left ventricle, which developed following a myocardial infarction.

to 5 years in the country areas. Patients are generally seen in local State Clinics. If their problem is moderately serious they may be referred to a district center and then to one of the major medical institutes in the cities. Most of the thoracic and cardiac surgery is referred to the larger institutes.

The First (Moscow) Medical Institute is probably the largest medical institution in the Soviet Union. The Director, Prof. V. V. Kovanov, (Fig. I) is a young appearing hero of World War II who is well thought of and visited us in New York in 1957. He has approximately 6,000 medical students in the institute and about 2500 patients. His Chief of Surgery is Professor Petrovsky, who was one of the four physicians awarded the Lenin Award in 1960 for advances in cardiac surgery. Surgeons won two of the other awards, Professor A. A. Vischnevsky of Moscow and Professor Kupryanov of Leningrad. A visit to the hospital revealed the cottage type seen frequently in Europe. The building concerned with surgical patients was quite old as were the rest of the building but kept quite clean. The nursing coverage seemed to be minimal except in the small recovery room of 4 beds adjacent to the pre-operative female cardiac ward. In this ward there were about 20 patients in rather crowded but otherwise pleasant conditions. A small pediatric surgical ward was in the same area. The medical equipment appeared to be antiquated, with simple rubber tubing and open glass containers used for intravenous infusions.

The main operating theatre was old style with two open galleries for viewing operations. Petrovsky operated on a patient with an aneurysm of the left ventricle which developed following myocardial infarction. (Fig. II). He sutured a pedicle flap of diaphragm into the surface of the heart in the hopes that it would strengthen the wall. In our country these cases are now operated with extra-corporeal circulation and excision of the weakened area. Open heart surgery has not advanced greatly in the USSR and as of May 1960 there had been probably less than 150 patients so operated. Mortality had been so high that in some institutes this work was temporarily abandoned. Professor Petrovsky showed a bubbler type of pump-oxygenator (Fig. III) which

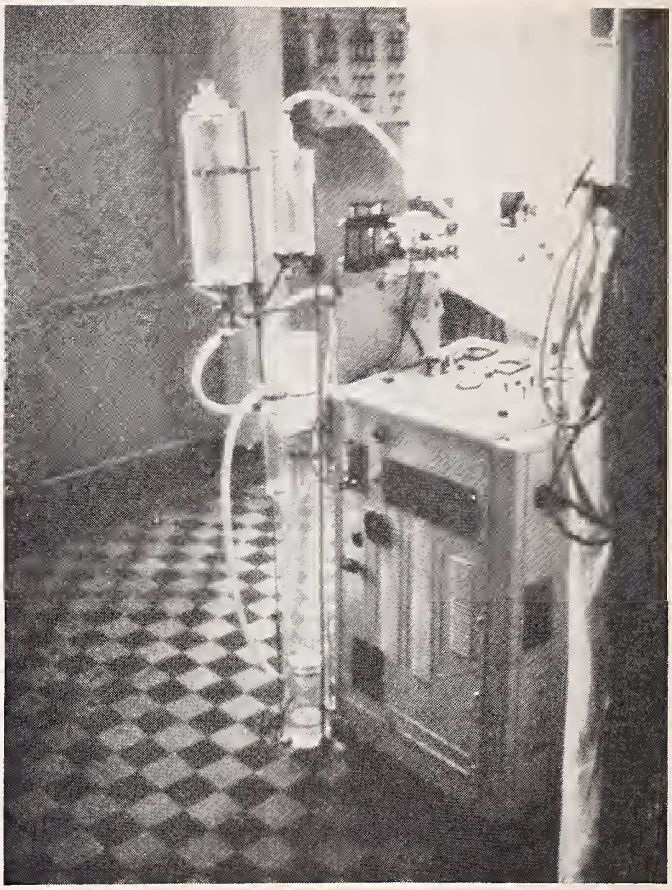

Figure III
This apparatus for extra-corporeal circulation has a Dale-Schuster type pump and a bubbler type of oxygenator.

Figure IV
The Vischnevsky Institute was founded by the father of the present very capable Chief of Surgery, Professor A. A. Vischnevsky.

was in use clinically, and an image intensifier for cinefluorography which had just been shipped from the United States. Throughout the visit in May 1960, our personal relationships with Soviet physicians were most cordial and pleasant despite the fact that the U-2 plane had been brought down two weeks before and the Paris Summit Meeting had broken up only two days before our arrival.

The Vischnevsky Institute is also an old hospital, housed in one building and founded by the elder Vischnevsky. (Fig. IV) The son is a very capable thoracic surgeon interested also in autonomic nervous system, limb transplantation and cardiac surgery. He was also a recipient of a Lenin Award. During my visit, I observed Vischnevsky extract a rifle bullet from the chest of a soldier shot in World War II (Fig. V) and on another occasion perform a subclavian to pulmonary artery shunt for tetralogy of Fallot. In the latter case there was a moderate amount of monitoring performed (oxygen saturation, EEG, blood pH, EKG, etc.). There was also a closed circuit color television used to show the procedure to about 100 doctors from the Congress visiting the Institute at that time.

The Cardiovascular Institute was a new hospital but antique in architecture as evidenced by the employment of Greek columns and the yellow and white decoration. (Fig. VI) Academician Bakuliev was the Director and a very intelligent and realistic individual. His Chief of Surgery Professor Kolesnikov, seemed to be a capable surgeon. There we saw a closed mitral commissurotomy being performed with monitoring in a very clean, well equiped operating room. We also saw a boy who had had a closure of an intraventricular septum on extra-corporeal circulation the previous day. The Institute was divided roughly into four divisions: diagnosis and medical pulmonary disease, tuberculosis, diseases of the esophagus and surgical cardiac and pulmonary disease. Whereas the Moscow Medical Institute apparently had about 2500 beds, the Vischnevsky Instiute and Thoracic Disease Institute were much smaller, having approximately 200 to 300 beds each.

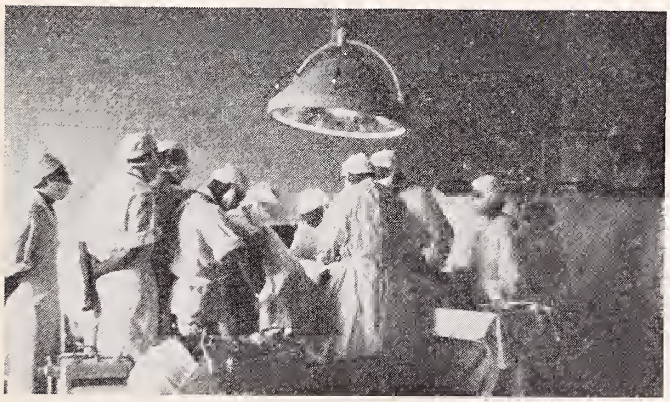

FIGURE V

Professor Vischnevsky has a great interest in thoracic and cardiovascular surgery. He is shown operating on a soldier who has a bullet in the pericardium from World War II.

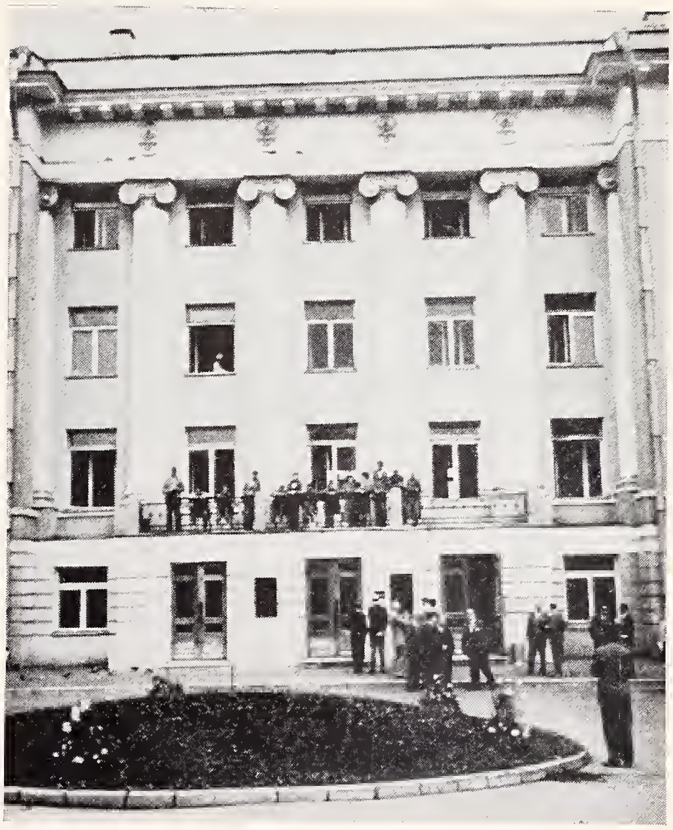

FIGURE VI

The Cardiovascular Institute was one of the hospitals visited by the delegates to the 27th All-Union Soviet Surgical Congress.

The Sklifosovsky Institute is an old cottage style hospital with 1,200 beds and is the emergency hospital of Moscow. Prof. M. Tarasov, the Director, visited Boston in 1960. His chief surgeons include Professors Petrov and Androsov, both of whom have also visited America. These men are interested in esophageal surgery and it was of interest that over 1,000 cases of lye stricture have been treated at the hospital. Of these the bulk were managed by bouginage and gastrostomy, but over 300 had received a two stage reconstruction of the esophagus employing a segment of colon implanted substernally from stomach to cervical esophagus. This operation was also employed for carcinoma of the esophagus involving the upper half. One of these operations was performed by Prof. Petrov and it was done exceedingly well. Androsov performed several gastrectomies and it was of interest that he induced the spinal anesthesia himself in each instance and demonstrated some of the stapling apparatus suitable for gastric resection for which

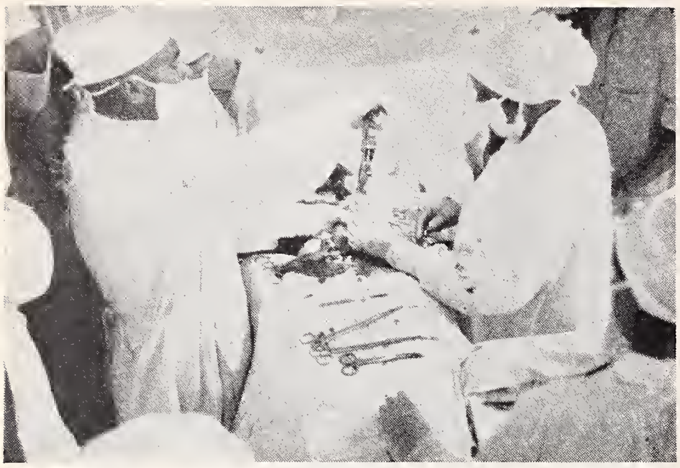

Figure VII

Professor Androsov applies a stapling apparatus to the stomach during the course of a partial gastrectomy for carcinoma.

he received a Lenin Award. (Fig. VII) The patients had carcinoma of the stomach which is very common in Russia and is still the No. 1 cause of cancer in males. Incidentally, the field of anesthesiology was not developed until recently in the USSR and at the time of a survey of that country by Dr. E. M. Papper of Columbia Univ. in 1958 there were approximately 200 fully qualified anesthetists in that country. The majority of surgical cases are still done under local infiltration, regional block or spinal anesthesia.

There has been some difference of opinion as to whether cadaver blood is employed in the Soviet Union. Apparently it is used only in the Sklifosovsky Institute where it comprises 80 per cent of their banked blood. The cadaver must be a victim of sudden death without penetrating wounds and the blood must be drawn within 6 hours. It is then checked for sterility, and serology; then is grouped and stored at 4 degrees centigrade in units of 250cc which contains 70cc of special preservative fluid quite different from our ACD solution. The blood is released about a week after being obtained, once the complete results of the autopsy are available. Director Tarasov jokingly remarked that they knew more about their blood donors than we did. Apparently well over 30,000 units of this blood has been given since it was first introduced about 1930 by Yudin in that Institute.[3, 4]

The Postgraduate Institute serves a specific function; namely, providing advanced instruction to groups of 25 or so postgraduate students who come for periods of three months. Prof. Ossipov, one of the few English speaking top surgeons we encountered, was most cordial and had also visited America. His chief of thoracic surgery was a young woman which was unusual since most of the surgeons and directors in top positions were men, despite the fact that about 65 per cent of medical students and physicians in the USSR are female. In that Institute major surgery including esophagogastrectomy and pneumonectomy were performed without general anesthesia. Ossipov explained this by stating that this type of anesthesia was not his preference, but the men who were there in training had no anesthetists in their own hospitals and would have to learn a practical way of performing this surgery. In all instances the anesthesia appeared quite satisfactory.

A tour of the surgical ward on the thoracic service revealed much suppurative pulmonary disease, similar to that encountered in our own hospitals about 15 years ago. There appeared to be a predominence of bronchiectasis, empyema and abscess. There is apparently minimal use of antibiotic drugs in the USSR, although at the completion of most major operations, the surgeon sprinkled powdered penicillin and streptomycin into the wound. The ordinary use of antibiotic agents appeared limited

Figure VIII

Professor Demichov is most capable technically in performing organ transplantation.

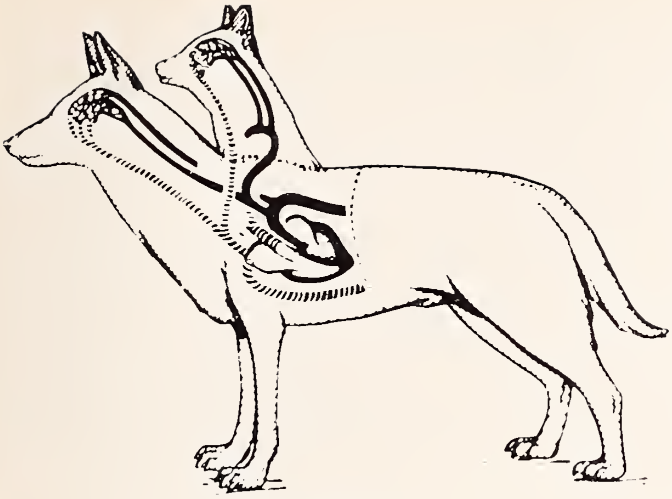

FIGURE IX
Diagram of the "two headed" dog produced by Prof. Demichov.

to these two although chloromycetin was observed as ingredient in certain preservative solutions for blood.

It was possible to visit the clinical facilities of the First Pavlov Medical Institute in Leningrad at the kind invitation of Professor Fedor Uglov who later paid a visit to Boston in 1961. This very pleasant English speaking surgeon is also primarily interested in cardiac and thoracic surgery and performed several mitral commissurotomies during my visit. His hospital is also quite old dating back to about 1835 but was very clean and kept in reasonable repair. Here too closed circuit television was employed to aid in the instruction of surgical students. His first assistant and several members of his staff were women. The ward and laboratory facilities were similar to those in the other major institutions.

It was possible to pay visits to some of the research institutes which are quite numerous and for the most part very highly specialized in their function. This provides an interesting contrast to the medical institutes where a very general and broad emphasis prevails.

Prof. V. Demichov is perhaps the most capable investigator of organ transplantation, (Fig. VIII) at least from the technical viewpoint. It was he who aroused so much interest in the two headed dog. The head and fore quarters of a small adult dog or puppy were anastomosed to the shoulders of adult mongrel animals. There was an esophageal fistula formed and vascular anastomoses between the cervical brachial arterial trunk and innominate vein. (Fig. IX) The heads functioned within normal limits but persisted for only 29 days. It is of interest that Guthrie in the United States produced a two headed dog in 1908.[5] The success with accessory heart transplantation was also noteworthy. About 25 different experimental methods of implantation were evaluated and successful function of an accessory heart in the adult dog claimed for up to 32 days.

To my knowledge no specific work aiming at modification of the host rejection of homotransplants was performed by Demichov. Apparently some studies along this line are being conducted in certain other institutes, however. During 1960 Prof. Demichov moved his laboratories to the Sklifosovsky Institute where his work is continuing.

The Research Institute for Experimental Surgical Instruments and Apparatus is an interesting one devoted to the development and experimental and clinical trial of surgical equipment of all types. Professor Ananyev is the Director and visited Boston with a group of his associates in 1961. (Fig. X) Among the group was his Chief of Surgery, Prof. Mushegian. A previous visitor to Boston was his Chief of Experimental Surgery, Prof. Lapchinsky. At this institute many varieties of the surgical stapling apparatus were developed and tested on animals. In addition there was a small clinical unit with patients suitable for further trial. In addition to surgical instruments, larger equipment including resuscitators and anesthesia apparatus and pump oxygenators were designed and built in the institute. Prof. Lapchinsky also had a special interest in tissue transplantation and reported a very interesting series of experiments involving total limb transplantation, immediate and delayed, to the Fourth Tissue Transplantation Conference in New York in 1960.[6]

The Institute of Resuscitation headed by Prof. Negovosky was another interesting establishment, located inconspicuously in the middle of Moscow. In this three story building there were a number of

FIGURE X
Professor Ananiev, Director (right), poses in front of the Institute with Professor Lapchinsky, Professor Mackey of Glasgow and one of the staff. (courtesy: Deterling, R. A., Jr., "Russia Revisited," AMA Archives Surgery, 83: 275, Aug. 1961.)

specialized laboratories equipped to produce death in animals by various methods. There teams of scientists are studying the most effective means of resuscitation. There was a well equipped and extensive neuroanatomy laboratory and a large conference room available to the staff. On the bulletin board were photographs of patients who had been successfully brought back from death by the application of the methods developed by the staff of the Institute.

Although there were many other institutes of interest, one must realize that it is somewhat difficult to arrange visits when in the Soviet Union as a tourist. There was a planned program for the delegates to the surgical congress, and consequently a number of institutions of interest to the author were not visited. There has been an increasing number of visits by physicians of the two countries and there has been developed during the past couple of years an exchange program for physicians and medical technicians arranged between the State Department of the United States and the USSR Ministry of Health.*

In these days of political tension it seems certainly worthwhile to encourage such exchanges and mutual visits. The number of American visitors to Soviet Russia has increased greatly each year,† although still only a very small percentage of the great number of tourists invading Europe each year. In every instance the personal relationships have proved to be pleasant and most cordial. The hospitality afforded by the directors and their staffs has been most heartening and we have been pleased to reciprocate in this respect. Through these personal contacts there have been noticeable achievements in lessening suspicion and misunderstanding not only relating to the field of medicine but the way of life in both countries. It is to be hoped that what is being achieved by physicians in this way will aid materially in the overall effort to achieve the stable peace for the future.

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†About 11,000 in 1959 and 16,000 in 1960.

*One of our research fellows, Dr. Jack M. Matloff of West Haven, Conn., was privileged to spend four months in 1962 with Prof. Demichov in Moscow, through the U.S.-U.S.S.R. Cultural and Scientific Exchange Program.

REFERENCES

1. Walters, W.: Russian surgery and the Russian Surgical Congress. A.M.A. Arch. Surg., 82: 191, 1961.

2. Wood, G. U.: Doctors, hospitals and patients in Russia. Mod. Hosp., 93: 67, (Sept.) 1959.

3. Yudin, S. S.: Transfusion of cadaver blood. J. Am. Med. Assoc., 106: 997, 1936.

4. Petrov, B. A.: Transfusion of cadaver blood. Surgery, 46: 651, (Oct.) 1959.

5. Guthrie, C. C.: Blood vessel surgery and its application, 1912.

6. Lapchinsky, A. G.: Recent results of experimental transplantation of preserved limbs and kidneys and possible use of this technique in clinical practice. 4th Tissue Homotransplantation Conf., Annals of N. Y. Academy of Sciences, 87: 539, 1960.

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EDITORIALS

The Electrocardiographic Test For Coronary Artery Insufficiency

Elsewhere in this issue is a discussion of an electrocardiographic two-step test to help determine the existence of coronary artery insufficiency. The usefulness and limitations were considered and it was shown that the test has its greatest value when it is positive and when rigid criteria were employed to establish the positive. Such signs were S-T segment depression of 0.5 mm. or more accompanied by a prolongation of the duration of the depressed S-T segment persisting for at least two minutes after exercise. The greater the displacement of the S-T segment, the greater is the likelihood of coronary insufficiency. It was clear that a negative test did not exclude the presence of coronary atherosclerosis since it was found in patients who had recovered from myocardial infarction. The author rightly points out that in the presence of a characteristic acquired syndrome, more reliance should be placed on the history rather than on a negative test.

Davies in 1958[1] pointed out that experts not only disagree as to whether a given electrocardiogram should be labelled as normal or abnormal, but often fail to agree with their own previous diagnosis on reviewing records a second time. Such results might arise from the inability to decide what the normal limits might be rather than from failure to observe the records correctly. At all events, no test can ever reach the impossible goal of never being in error. What we need to know is what the probability of error really is.

A physician, of course, weighs all the relevant evidence before reaching a final diagnosis and the result of a single laboratory test is only one weight on the balance. It is not often that a laboratory test is the most important factor in arriving at a correct diagnosis. Almost everything we do, percussion notes, cardiac murmurs, and palpations have their false positives and negatives also. It is, therefore, important whenever a laboratory test or physical sign is elicited to remember the problem of error or stated in another way, the probability with which a given test or sign may be true or false.

In the case of exercise tolerance tests for coronary insufficiency, we are measuring whether a given degree of exercise will produce anoxia of a portion of the myocardium and we are assuming that the anoxic area is so situated as to be reflected in electrocardiographic alterations. The first is a variable since every coronary artery stenosis is of different degree and the exercise rendered might not exceed the coronary capacity sufficiently to produce anoxia of the myocardium in a given patient. The second is also variable since not all cardiac areas speak with equal effectiveness in the electrocardiogram. A third variable in S-T segment interpretations arises from the frequency with which other factors beside anoxia enter into the picture to cause S-T displacement such as, for example, overactivity of the sympathetic nervous system.

The question, therefore, arises whether or not it would not be desirable in reporting an electrocardiogram after an exercise tolerance test to include the probability of a given negative test being true or false, and the probability of a given positive test being true or false.[2] If the dividing line in S-T segment deviation is arbitrarily set at one mm. depression, then fewer than one normal subject in a hundred will have a "positive exercise test." At the same time, about 65 per cent of the patients with coronary disease will have "negative" tests. If a critical value of 0.5 mm. depression is chosen instead, then 16 per cent of normal subjects will have false positives, while 25 per cent of patients with coronary disease will have false negatives.[2] Whatever criteria are chosen, although the test may be useful when kept in its place as one piece of information, the test cannot be infallible. It would seem, therefore, that if a test on a specific patient is reported as positive, a very important question arises: "What is the probability that the result is false?"

It would seem that for the practising physician who requests an exercise tolerance electrocardiogram for assistance to help him arrive at a diagnosis of coronary artery insufficiency, that he would be benefitted by a quantitative interpretation of the electrocardiographic response to exercise. Perhaps he should be informed of the probability of a normal subject having less S-T depression than that observed and the probability of a patient with coronary disease having more. In this way the probability of error would be known and the final judgment as to whether or not coronary artery insufficiency exists would be left to the doctor where the responsibility rightly belongs.

L.H.N.

REFERENCES

1. Davies, L. G.: Observer variations in reports on electrocardiograms. Brit. Ht. Jr. 20:153, 1958.
2. Milnor, W. R.: Evaluation of diagnostic tests on cardiovascular disease. Mod. Concepts of Cardiovascular Dis. 31:707, Feb., 1962.

The Coronary Prone Male

The practice of medicine has gone through several phases. For centuries diagnosis and a sympathetic understanding of the patient's suffering seemed the end result of the effects of physicians. This gave rise to many aphorisms such as the "love of medicine makes the scientist. The love of the patient makes the physician." "It is much more important to know what sort of a patient has a disease, than what sort of disease a patient has." With the growth of modern therapeutics marked improvement took place in the prognosis and the outcome of disease. But improvement in therapeutics was soon discovered to have only limited potential for saving victims of some diseases like coronary artery disease, and so we are now entering the era of prevention, the concept of which has become an integral part of daily practice of general physicians and internists, much as it already has in pediatrics and obstetrics.

Everyone now recognizes that there has been a distinct change in medical practice from diagnosis and treatment of disease to encouragement of patients to seek medical attention earlier in the course of illness. It is based upon the belief that the earlier diagnosis, the sooner the treatment is started, the better will be the outcome. But what are we to do to treat many abnormalities that are not diseases *per se,* that do not appear to cause discomfort to the patient and whose importance in terms of producing future difficulty is not too clearly defined? For example, at what level should treatment of hypertension be started, at what age group? Such questions are still difficult to answer because we do not have enough knowledge of the natural history of this disease and are unable to select the individuals who are most likely to develop hypertensive disease ultimately. Knowledge of the natural history of a disease allows one to observe under what circumstances it occurs. This permits us to know what is normal and what is abnormal that will cause the development of a disease.

With regard to coronary artery disease Dawber and Kannel point out that although some slight improvement in the mortality rate may be brought about by further advances in therapeutics, nevertheless more hope appears to lie in a preventive approach to the disease in susceptible individuals who may be identified many years before the onset of overt coronary disease. If we can recognize the factors which lead to the development of the disease, this could point the way to a preventive program. Many epidemiologic studies in varying geographic areas with different populations have been carried out since World War II. These have provided increasing evidence that the way of life of individuals affects their susceptibility to coronary disease. As a result of an eight year study in Framingham Dawber and Kannel[1] have provided important evidence as to how to identify the coronary prone individuals. They have shown that the principal factors associated with excessive rise of coronary disease are elevated serum cholesterol, increased blood pressure, decreased vital capacity, certain electrocardiographic abnormalities, cigarette smoking and obesity.

As far as age and sex is concerned there is nothing much that can be done in this area, except to recognize that women have coronary disease but at rates comparable to men ten years their juniors. With myocardial infarction the difference is even more striking, the lag being 20 years. Apparently men get the disease younger and in a more lethal form so that a preventive program is more imperative for the susceptible male, while females might be even more protected by estrogen replacement.[2]

At Framingham coronary disease developed at a much greater rate in persons with high serum cholesterol levels than in those with the low levels during continual observation for eight years. The risk of coronary disease in young men was six fold higher (!) in those whose cholesterol levels were more than 260 mg. per 100 cc. compared with those whose levels were less than 220 mg. per 100 cc. In fact there appeared to be no level that implied the lowest possible risk of coronary disease. From the data presented practically everyone in the Framingham population apparently might benefit from efforts to lower serum cholesterol levels. The authors were still not able to determine with serum lipids as with cholesterol what levels of lipid are normal or abnormal. But for the present the serum cholesterol level has not been excelled as a predictor of coronary disease in the asymptomatic individual.

As concerns blood pressure, animal experiments have demonstrated what the clinician has long known, i.e. that atherosclerosis is accelerated by production of elevated blood pressure. In Framingham over an eight year period elevated blood pressure significantly increased the risk of coronary artery disease in both men and women. A seven fold increase in the risk of coronary disease was noted on going from the lowest systolic level of 120 mg. hg. to pressures of more than 180. To be sure there is a gradient of risk even within the blood pressure ranges often considered normal. It is not surprising to find that for any given level of serum cholesterol the risk of coronary disease rises progressively with increments in blood pressure. After all they both damage the elastic lamellae of arteries.[3]

Electrocardiographic changes like left ventricular hypertrophy, bundle branch block and non-specific abnormalities which the authors found to be associated with a two fold increase in risk of coronary artery disease should really be considered evidence of already existing disease not precursors of future disease. But a reduced vital capacity of less than three liters to be associated with twice as much coronary disease as a vital capacity of four liters was somewhat of a surprise, although here again we are already dealing with a bronchopulmonary disease which may already have produced changes in the coronary arteries also.

Cigarette smoking, though not pipe or cigar smoking, was definitely associated with more than a two fold excess risk of the more severe forms of heart disease and in increased mortality. Furthermore an increasing gradient of risk of myocardial infarction was noted with the more intense and prolonged exposure to cigarette smoke. Interestingly enough persons who stopped smoking showed no greater risk of coronary disease than did nonsmokers, a finding that should be a matter of encouragement to discontinue the smoking habit.

Obese men and women with a weight of 30 per cent or more above the median weight for their height or sex had a two fold increase in risk of coronary disease and much of this excess risk could be explained by an association of excess weight with elevation of blood pressure.

Combinations of all the various factors independently contributing to the risk of coronary heart disease augment the risk greatly. For example, elevation of serum cholesterol and vice versa. It would seem reasonable to conclude that those persons with combinations of all the various characteristics would be the most susceptible. Such individuals would be heavy smoking middle-aged obese males with elevated serum cholesterol levels and low vital capacity. It is clear that recommendations for the prevention of coronary artery disease consists in treating hypertension, reducing obesity, curbing smoking, maintaining physical fitness through increased physical activity, and taking steps by diet and other safe methods as they appear to reduce serum cholesterol. Most of these methods are not harmful and it certainly seems reasonable to employ them in persons identified as highly susceptible.

The question remains whether improving the "profile" by changing factors of risk in a favorable direction will truly prevent or postpone the onset of coronary disease. Every physician is called upon to weigh the possible benefits against the possible harm to be derived from any form of therapy. It is true that absolute proof of the efficacy of a therapeutic regime aimed at changing risk factors is still lacking, nevertheless there is good reason to recommend such efforts with high expectations of beneficial results especially since the methods advocated are not harmful but are consistent with well accepted health practices in general. Perhaps if we seek out the coronary prone patient and successfully eliminate the "high risk" factors the so-called "epidemic of coronary heart disease" may be overcome.

L.H.N.

REFERENCES

1. Dawber, T. R. and Kannel, W. B.: Application of Epidemiology of Coronary Heart disease to Medical Practice. Modern Medicine, 30: 85, Sept. 2, 1962.

2. Estrogen and Atherosclerosis. Editorial, Connecticut Medicine, 26: 549.

3. A Unified Theory of Atherogenesis. Editorial, CONNECTICUT MEDICINE, this issue.

An Unmet Community Health Need

There are many agencies dealing with care and welfare of the blind, most of them doing excellent and much-needed work. But with rare exceptions, none are geared to prevention of blindness. Most remain essentially social-welfare groups oriented to the problems of the blind.

Public health departments are medically oriented units, and prevention and restoration are essentially medical problems rather than responsibilities of social welfare agencies.

Visual disorders cost America a staggering $4.5 billion in care and loss of national productivity every year. That's more than 10 times what it cost to put an astronaut into orbit around the world. I'd like to discuss the 4 most important sources of this waste of manpower and money—all of which are quite vulnerable to organized community public health attack:

Cataracts.—Cataract is the most important single cause of blindness in the country today, accounting for 18 per cent of all lost vision. It also offers the greatest chance for restoration of sight. Golden Years clubs, welfare agencies, social organizations, visiting nurses, public health nurses, physicians, clinics, hospitals, all who reach the elderly citizen can help educate them out of their resistance to restorative surgery. Low-vision aids centers could be established to help those older persons, and young ones too, whose sight is poor but still usable. All this would qualify, it seems to me, for financial assistance under the Health Services and Facilities Act.

Glaucoma.—One of every 8 blind Americans is a victim of glaucoma. The key to glaucoma is early detection. The general practitioner must pick up the slack in the examination process, for there are simply not enough ophthalmologists in the country to handle the work load. Through a community glaucoma control project, the health department might join with the county medical society to educate physicians on the importance of including tonometry in physical examinations. When the medical men are prepared for their part, a public education and detection campaign could be organized by the department. There is every assurance that such a glaucoma detection program would qualify for government aid.

Preschool Screening.—Youngsters must rely on adults for good vision, for the young tot, not knowing how well he should be seeing seldom complains about vision problems as he does about a stomachache or a troublesome tooth. The best defense against unnecessary loss of vision in children is a comprehensive and continuous vision screening program, preferably in the preschool age when defects can still be corrected with best results.

Vision Safety.—Accidents impair the vision of more than 300,000 adults and 150,000 youngsters every year. Only a small portion of these are real honest-to-goodness accidents that could not have been prevented. Nine out of 10 were the product of a breakdown in our safety attitude and should never have happened at all. Ridding your community of the toll of vision damage will mean educating every child and adult—including those who don't give a damn about your safety or their own—into a round-the-clock zeal for accident prevention. While this program will be most demanding, it offers an unusual opportunity for widespread cooperation and intelligent direction.

Half of all blindness is needless and preventable. No new cures or miraculous discoveries are needed to save the eyesight of 15,000 of the 30,000 Americans who will go blind this year. Health departments employing the talents they already possess are capable of turning back the shadows of much blindness. The means are now available for communities that have the will to use them.

John W. Ferree, m.d., *New York City*
Executive Director, National Society for the Prevention of Blindness.

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Daedali Leave Britain

The study of the social behavior of physicians is one of the least developed branches of the sociology of medicine. The first awareness of this type of human behavior goes back to Greek mythology and the legend of Daedalus. Daedalus was described as the first mortal inventor who was passionately devoted to the solution of problems in applied research at the same time being completely free of any ethical and social norms. He starts his career by killing his colleague Talos out of professional jealousy and flees to the court of King Minos of Crete.[1] There by appropriate inventions Daedalus solves a series of problems of questionable moral and political worth. He constructs a machine to enable Minos' wife to copulate with a bull. He devises a labyrinth where Minos can hide the shameful monster born as a result of the previous invention and finally he invents a device for solving the puzzle of the labyrinth with the result that the subversive Athenian Theseus kills his employers monster son and steals his daughter.

Deciding suddenly to quit his post in Crete and refused by Minos permission to leave as well as the means of transport, Daedalus invents the flying machine and takes off to a new post in Sicily. Minos who seems to have valued highly the services of Daedalus sails off with a fleet to find him and bring him back, and does find him. Daedalus promptly solves the problem posed to him by his new employer. He constructs a bath such that when Minos pulls the shower handle he is scalded to death.

This is an obviously tendentious legend but one point remains obscure. If as is evident Minos did not want to lost him why did Daedalus leave? Did he leave because he felt that elsewhere he could work better on problems he was interested in. Did Daedalus emigrate because he felt his colleagues in Crete were too dull and he wished to run away. Or did he leave because he felt that society no longer provided good conditions for the proper development of his science.

Recently the Daedali of Britain have been emigrating in increasing numbers.[2] Some were men of middle age with a substantial stake in the country working in comparatively remunerative general practices and who for some reason preferred to abandon this and their homes in order to practice abroad. A far greater number of unestablished doctors engaged in hospital practice up to the range of senior registrar and even higher status have been leaving Britain in greater numbers than ever before. Lancet explained as the main reason for this heavy one-way traffic, is the young doctor's difficulty in establishing himself satisfactorily in Britain. Dr. John Seales figures in 1962[2], suggest that in the past four years the situation has shown no improvement. The principal part that emerges for the first time in Seales study is that the Daedali are leaving Britain because young doctors are having difficulty in establishing themselves in Britain; that there is dissatisfaction with the circumstances of practice and even that there is dissatisfaction with opportunities for research in Britain.

It is difficult to escape the conclusion that more doctors are leaving Britain than Britain can afford to lose. If foreign countries made their own arrangement to train doctors, the students would leave Britain even before graduation and the situation in Britain could become pretty grim. The writing has been on the wall so long that it is astonishing to find there are still some who are reluctant to read it. Is it not time to find out specifically what are the causes of the present discontents so that intelligent steps may be taken to encourage Daedali not to emigrate. Can it be because British society does not provide good conditions for the proper growth of medical science and its practice.

When a physician makes a choice to emigrate it must always be the result of an intense inner struggle for it involves cutting oneself off from innumerable ties strongly binding him to a particular social environment and going into a new and alien one. The flight of Daedali from Britain is only one measure of the painfulness of the process. But it is an important symptom of the relatively unsound social conditions for medicine in Britain. The Minoses of Britain can less and less afford to ignore the missing factors to retain their doctors. There must come a transformation of their environment presently alien to medical practice, to one attractive for the work of their individual Daedali. Apparently the quality of medical care has been allowed to deteriorate and it is no good giving the people "free medicine" with bad quality.

L. H. N.

REFERENCES

1. Dedijer, S.: Why did Daedalus leave? Science, 133: 2047, 1961.
2. Editorial, Emigration of doctors. Brit. Med. Jr., 1534, 1962.

Long Term Studies With Overweight Women

Overweight, a major nutritional problem in this country, is a direct result of a greater intake than output of energy. Stated so simply treatment should be nothing more complicated than prescribing a diet which would reduce energy intake below output. The techniqne sounds as easy as regulating a furnace. The major defect, however, is that a person is not just a furnace and with most people it doesn't work. In a hospital where overweight subjects can have their food consumption and activities controlled it does work. It also works if patients become members of a "diet squad" under the direction of a competent nutritionist which supplies a basis for motivation to obtain credit for taking the course.[1]

The real problem, however, is not the above special situations but how to encourage patients to lose weight under normal living conditions where curtailment of individual intake is more difficult to achieve.

To develop for each person a food intake pattern and routine of daily living which would permit maintenance of the desired weight after a successful weight reduction, would certainly justify all the effort that went into the initial weight reduction for otherwise the relapse of the patient to her former status would vitiate the good work that went on before.

One of the essentials in weight reduction is for the patient to understand the implications of the principle that the balance between energy intake and output determines the final weight. They must know that to put on one pound of fat they must eat 3,500 calories and that if they eat 100 extra calories a day for 365 days a year, they will put on 36,500 calories or about ten pounds. They must know this both intellectually and emotionally. They must know that calories do count. Another essential is for the physician who undertakes this great adventure with a patient to know what some of the factors are that interfere with a patient's action to pursue weight loss activity. In an effort to clarify this latter problem Wardlaw and McLaren have worked with seventy-eight overweight patients to determine the factors in success and failure of weight reduction.

A tendency to overweight since childhood was one of the factors found. Some after marriage gave up business, lived in a small apartment, a type of life in which energy expenditure was less than during the previous activities. Wives in preparing and serving food often ate as much as their husbands. Many ate all the food on the plate because as children they were taught not to leave any food on the plate. Rather than "waste" it they ate it instead. This led to an insidious steady weight increase. Many gained fifty pounds during pregnancy but did not return to their prenatal weight after the baby was born. With successive pregnancies in each case weight continued to increase until it was a health hazard. Although biological differences existed between the various members of the group studied, the environmental differences were greater. Each individual had her own food habits, whims, financial status, and cooperation of family and friends. These differences were reflected in the motivation, discipline, and cooperation of patients to control intake in such a way as to achieve a satisfactory weight loss. Breakfast was the meal most frequently missed. Excessive amounts of coffee and tea were consumed at breakfast, morning snack, lunch and at the afternoon break. Most subjects ate a dinner consisting of meat, potatoes, gravy and dessert. Snacks during the evening were prevalent. Distribution of nutrients was unsatisfactory. They consumed many empty calories. Probably these faulty habits of eating were learned during the adolescent period when most disliked milk, cheese, fruits and vegetables and preferred sandwiches, hot dogs, hamburgers and meat with potatoes, gravy, cake and pie.

It is obvious that drastic changes had to be made in meal pattern of the obese subjects if they were to lose weight successfully. They had to be given a weight to strive for, a diet designed so that the patients would lose approximately two pounds a week.

During the first twelve weeks anorexigenic drugs were given to inhibit the appetite and automatically curtail food intake. This of course, made their weight loss quite acceptable. But the use of the drug acted as a crutch and made it extremely difficult for the nutritionist to change the subject's eating pattern. The initial enthusism for weight loss displayed by the majority of the subjects gradually decreased. Over one-third of the subjects quit within the first six weeks. The groups participation with regard to adherence to the food pattern diminished. Errors slowly crept in such as introduction of snacks and omission of breakfasts. Staying up late to watch television programs were accompanied by snacks. Irregular attendance at clinic developed because the subjects rose later in the morning and developed the brunch habit.

After twelve weeks the initial enthusiasm was on the wane, and the real challenge came at this time to develop methods to motivate the subjects so their enthusiasm could be kept at a high pitch. Some of the few that were successful felt much better and took a business position. Promptly their new duties upset their good management practice, they became tired, got behind in their work, were generally frustrated and gains in weight almost invariably followed. Clearly motivation and discipline are of the utmost importance for the subjects to be able to cooperate in a permanent effort to strive for an ideal weight and once reached to strive to keep it there. This lead the authors to give each of the subjects tests to analyse their personality. Knowing already the trouble with motivation and discipline they encountered in their elaborate effort to study the obese patients habits it was not surprising that a relatively high degree of abnormal responses were found in forty-seven patients tested by the Minnesota Multiphasic Personality Inventory (PMPI). The intelligence quotient however, were in the normal range.

It is clear from the excellent studies of Wardlaw and MacLaren that the subjects must change their eating habits permanently in order to achieve a significant change in weight by diet alone. Anorexogenic agents while helpful initially, lose their effectiveness in a few weeks. Enthusiasm can help greatly in weight loss and methods of nutrition education can improve motivation and lead to greater weight loss. If the subject has not achieved the ideal weight in six months, they never will. What the subject needs to learn is a new way of life. What the doctor needs to know is the complexity of the problem, the factors involved and he must face up to the hard fact that under the best of conditions he may expect only a few successes.

Even with the most elaborately organized nutrition clinic, with doctors, nutritionists and psychologists all striving to reeducate the obese person to achieve a new way of life most of the effort led only to failure.

L. H. N.

REFERENCES

1. Wardlaw, J. M., McLaren, B. A.: Long term studies with overweight women. Triangle, Volume 5:145, 1961.

Smoking And Bronchial Cancer

Cancer of the bronchus now causes over one-third of all cancer deaths in males and if we take both sexes together it is now the commonest fatal cancer and its lead is increasing.[1] Doll and Hill's prospective study of British doctors is still the most convincing but many other investigations from all over the world all tell essentially the same story.[2] If we did not smoke cigarettes the incidence of bronchial cancer would only be about one-eighth of its present level. From epidemiological studies therefore, we do know how to stop lung cancer, simply just stop smoking! But interested persons (and most smokers are just that) will not be satisfied with what they call "circumstantial evidence." They must find an escape from this conviction by demanding isolation of the carcinogen and experimental verification that it produces cancer in animals.

It must be admitted that no classical carcinogen has been found in adequate concentration in tobacco smoke and no genuine lung cancers have been produced experimentally. It is true that tobacco tar produces cancer when painted on a mouse skin, but it is a slow ineffective agent by all ordinary standards. Even most active preparations take over a year to produce crops of tumors that classical carcinogens produce in under three months. Mice exposed to cigarette smoke[3] show metaplastic changes in the bronchial epithelium which are identical with that found in the heavy smokers and resembled both in frequency and kind those in patients that had died of lung cancer, but many mice are unaffected. The severity of the lesion is little related to length of exposure and there is no associated production of lung cancer. What is apparently a precancerous lesion in man is not precancerous in the mouse. Since tobacco tar is quite often ineffective as a carcinogen when painted on the most susceptible of objects the mouse skin, does this mean that smoking doesn't cause cancer of the bronchus in man.

If the active agent in cigarette smoke is a cocarcinogen, not a carcinogen then it would not be hard to understand the relation between smoking and lung cancer. The first experimental evidence for smoking as a cocarcinogen seems to have been reported by Woodhouse and Hamer from Birmingham.[4] Working on mice they used a cigarette tar which itself had no carcinogenic activity at all. When they added a cocarcinogen such as croton oil, the results were still negative, but when the mouse first received a brief exposure to benzpyrene, insufficient in itself to produce tumors and then painted for a long time with tobacco tar which contains in abundance a phenolic fraction which acts as a powerful cocarginogenic agent, then tumors appeared. Prolonged exposure leads to a massive increase in the number of tumors as compared to the number produced experimentally by a weak dose of a true carcinogen. These observations have been amply confirmed both in America[5,8] and in Scandinavia.[6]

It seems not unreasonable to suppose that the lesions of the mouse bronchial epithelium described by Leuchtenberger *et al*; which are reversible, and all but the most advanced stages of those described by Auerbach *et al*[7] in man which may very well be reversible, are not truly precancerous but rather an irritative hyperplasia due to the phenolic fraction. Such a view of the action of cigarette smoke, well explains the surprising prompt and substantiated fall in cancer incidence in those who have given up smoking. If smoking were due to a true carcinogen such reversibility would not take place. The reversibility however, is in accord with the action of a cocarcinogen in cigarette smoke.

Whether cancer develops or not depends on whether there has been a previous or simultaneous exposure to a sufficient dose of a true carcinogen or to the additive effect of several carcinogens. Under such circumstances the dose of true carcinogen or carcinogens required may be small and then the tobacco smoke and benzpyrene in town dust taken together may suffice in susceptible subjects. In this view cigarette smoking may be only a secondary cause of bronchial cancer. In practice whether it is a secondary or a primary cause really makes no difference. All you need to do is to protect the bronchial mucosa from the powerful cocarcinogen in cigarette smoke by stopping smoking. If a well is infected, the simplest way to protect the drinker is to remove the handle of the pump. As Lancet[1] aptly points out, cigarettes are the handle of the pump out of which comes bronchial cancer.

L. H. N.

REFERENCES

1. The cigarette as co-carcinogen. Lancet, 85, 1962.
2. Doll, R. and Hill, A. B.: Lung cancer and other causes of death in relation to smoking. British Med. Journal, 11: 1071, 1956.
3. Leuchtenberger, C., Leuchtenberger, R., Zebrun, W., and Shaffer, P.: A correlated histological, cytological, and cytochemical study of the tracheobronchial tree and lungs of mice exposed to cigarette smoke. Cancer, 13: 721, 1960.
4. Woodhouse, D. L. and Hamer, D.: Cigarette tobacco tars. Annual report of British Empire cancer campaign, 238, 1955.
5. Wynder, E. L.: Towards a solution of the tobacco-cancer problem. Brit. Med. J., 1: 1, 1957.
6. Wynder, E. L. and Hoffman, D.: Present status of laboratory studies on tobacco carcinogenesis. acta Path. Microbiol. Scand., 52: 119, 1961.

7. Auerbach, O., Stout, A. P., Hammond, E. C., and Garfinkel, L.: Changes in bronchial epithelium in relation to cigarette smoking and in relation to lung cancer. N. E. J. Med., 265: 253, 1961.

8. Roe, F. J., Solomon, M. H., and Cohen, J.: Incomplete carcinogens in cigarette smoke condensate: tumor production by a phenolic fraction. Brit. J. Cancer, 13: 623, 1959.

Exocrinology

When Starling coined the term hormone, he also spoke of "chemical messengers" but in a much broader meaning than hormone, a term which he restricted to substances produced in one part of the body, carried by the circulating blood to another part where they evoke a response. Although CO_2 is such a substance the term hormone is now restricted to the products of internally secreting glands, which are involved essentially in the integration of the individual. Chemical messengers however, can now be given wider connotation to include not only hormones which are involved in the integration of the individual, but also certain external secretions which are involved in the integration of populations of individuals. Such substances might properly be termed exocrines.

The queen substance of the honey bee 9-oxodec-2-enoic acid is secreted by the mandibular glands of the queen bee.[1] It is ingested by the worker bees which are undeveloped females. As long as this substance is ingested, the worker bees are retained in "sexless subjection." If the supply of this substance is cut off by the queen's death, then the ovaries of some of the workers may develop. But in general the workers at once sensing the danger of liberation from sexless subjection, start to build queen cells in an attempt to requeen the hive and regain the substance that keeps them enthralled. It is an extraordinary form of addiction to a chemical which serves a socially useful purpose.

The first hatched mosquito larvae have a slowing effect on the remaining unhatched eggs of the batch probably by secreting a chemical messenger.[2] The purpose it would seem is to prevent all eggs from hatching at one time, for if the environment were unfavorable at this time, the total progeny would be lost. There are sexual attractants of moths which at relatively enormous distances and in fantastic dilutions stimulate chemo-receptors on the antennae of the opposite sex. These are clearly analogous to the odorous substances of mammals which serve to mark sex, the oestrous condition, and evoke sexual behavior.

Parker and Bruce[3] have published a fascinating story concerning the role of olfactory stimuli in mammalian reproduction. They demonstrated in mice that smell is a very potent factor in their social life. Odorous substances produced by mammals serve not merely in defense, territory marking, and identification as for example in dogs, but also in sex attraction and the evocation of sexual and aggressive behavior. For example, the pregnant ewe is not attractive to the ram, but can be rendered attractive by smearing her vulva and perineum with a swab taken from the vagina of the oestrous ewe. In mice odors can constitute an exteroceptive factor affecting the oestrous cycle and even pregnancy by operating through neuro-humoral mechanisms. They emanate from the male and exercise a dramatic effect on the female.

The odoriferous glands of mammals are widespread, differ markedly in different species and have nothing in common except their odoriferous nature. Anatomically they may be located anywhere from the occipital region in the Arabian camel to the sternum in the opossum to the preputial glands in the musk deer and mouse to the anal perineal region of the sloat. Non-mammals have them also such as the musk glands in the cloaca of the crocodile. The function of these glands is clearly bound up with the sexual behavior of these animals, since they atrophy following castration and can be reactivated by the administration of the sex hormones.

Not enough is known about the nature and function of the substances produced, but their appearance in expensive and cheap perfumes indicates that manufacturers have jumped to a conclusion which seems to pay off handsomely.

Endocrinology has flowered magnificiently in the last forty years. Not only have the secretions of the obvious endocrines been identified and their actions clarified, but other organs have also been shown to secrete potent hormones such as renin that plays such a significant role in blood pressure regulation and erythropoietin that stimulates red cell production both arising in the kidney. An erythropoietic inhibiting agent from the spleen, secretion of serotonin by carcinoid tumors of the intestines are but a few of new hormones that are coming to light in the broad sweep of medical advance. Now exocrinology is about to blossom and come into its own.

L. H. N.

REFERENCES

1. Butler, C. G., Callow, R. K., and Johnston, N. C.: Extraction and purification of "queen substance" from queen bees. Nature, 184: 1871, 1959.

2. Gillett, J. D.: Control of hatching in the prediapause eggs of aedes mosquitoes. Nature, 184: 1621, 1959.

3. Parker, A. S. and Bruce, H. M.: Olfactory stimuli in mammalian reproduction. Science, 134: 1049, 1961.

THE PRESIDENT'S PAGE

In order that medicine may survive and continue to be the leading profession of all professions less criticism and more constructive thought and action should be given to the physician during his medical embryonic days, his medical education, his first years of practice, his most active years and his retirement period. The lack of well planned education and loss of interest in medical organization could explain medical apathy now so prevalent. To bring about a well calibrated medical career it would seem wise to interest and stimulate the minds of high school students who have natural ability for the medical profession, to ease their financial burden during medical school and early practice, to encourage support of medical organizations more vigorously during the height of their activity and to obtain financial easement during their later years.

Medicine is just awakening to these problems. A few high school students are being stimulated by lectures and showing of slides relating to professional interests. One small town in New Hampshire has given junior and senior high school students an opportunity to assist doctors and nurses in its small hospital and occasionally accompany the doctor on his house calls. Medicine should begin early to interest the minds of future medical students towards the needs of humans.

Three medical schools have shortened by two years the combined academic and medical study years for those students who show exceptional ability. The financial problem is one of the great hurdles for those students interested in the study of medicine. A good number of medical schools have developed loan funds which are to be returned without interest in a few years. The A.M.A. has recently devised a favorable loan plan. The lean financial years persist when the doctor begins to practice. He is usually married, has a family, and desires to purchase a home. These are normal and natural consequences for a successful and happy medical career. To relieve his financial pressure and stimulate his interest in medical organization the writer is so bold as to suggest that this entrepreneur be given membership in his county and state medical organizations at 50 per cent of membership dues for the first three years of practice. The physician should plan to invest most in medicine during his greatest productive years. As a rule we do not invest enough money in medical organization during those years which are the most fruitful. Our state medical dues are the second lowest of any state in the union. The physician spends less money for medical organizations than for any one of the following items, insurance on his car, on his home, on malpractice premiums, and on the theatre or for downtown dinners. Our plan of investment should be in the field of our endeavor, our livelihood, and our life's ambitions.

Lastly, more emphasis should be placed on our declining years. Those physicians who have been financially successful should be willing to maintain their financial support of organized medicine throughout their lives, but those whose practice has not been highly rewarded financially should have the privilege of maintaining their membership without dues after 70 years of age.

This plan of development for the medical profession, to bring about a cohesive organization throughout the doctor's life span, to make the medical organization financially strong and defend medicine against politics, unions and other adverse influences needs the consideration of every physician. It is not a pipe dream—it is a reality which we are required to think deeply upon and assist in its activation to maintain a profession which will continue to stand above the other professions.

Clyde L. Deming, M.D.

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Bureaucracy Über Alles

Nowadays we are finding it harder and harder to pick up a newspaper or open a magazine without finding somebody or other has taken a fresh whack at American medicine. It's bad enough when the punches are thrown by overly-eager politicians—"campaign oratory" sort of thing, but when they come from one of our colleagues it kind of gets us right *here!* (site unmentionable).

One of the latest attacks to be launched is reported on in Newsweek for October 15th. Under the heading of: "Insurance For What?" an unidentified member of the fourth estate starts things off with a very stiff left jab. "The prize article of faith of organized medicine", he tells us, "is that 'the voluntary way is the American way' and, with slogans such as this, it has labored to convince the nation that private health insurance is the superior alternative to government-controlled medicine." And before we've had a chance to ward off that one, he gives us the old right cross. There's been disturbing evidence turned up, he says, to indicate that private insurance "often fails to assure the patient of adequate medical care."

Now, we always thought it was the doctor—not the insurance company— who provided medical care but, anyhow, it seems as if a Dr. Ray E. Trussell and a few of his friends down at Columbia University's School of Public Health and Administrative Medicine have unearthed what they feel is some pretty awful stuff going on in New York's general hospitals under the umbrella of non-profit medical insurance plans. Their basic discovery looks to be that "only 61 per cent of the operations covered by Blue Shield in New York were done by 'qualified' surgeons", and that "inadequately trained doctors" are receiving payments from this agency. By "qualified" and "adequately trained", the investigators clearly mean board-certified specialists.

According to the Trussell group, the performance of almost any surgical procedure by M.D.'s other than board members is entirely reprehensible, and especially so if they happen to receive a third party payment for what they have done. The Newsweek article doesn't make it quite definite which is considered to be the greater offense—operating or getting paid for operating—but, at any rate, the study team has placed "the major blame for such deficiencies squarely on the shoulders of the medical profession."

Now, of course, they may be a certain amount of significance to what Dr. Trussell and his associates have reported. After all, in four long years of looking for trouble we think almost anyone would almost *have* to stumble onto something about Medical Care, U.S.A. which could stand improving. But as we gaze nostalgically at our American Board certificate hanging on the wall, we are reminded again of how unbelievably far medicine has advanced since we first hung out a shingle only fifteen short (?) years ago—how many refinements have been made in our ability to diagnose accurately; how many new and lifesaving drugs are available now and being used every day in even the smallest communities; how many more and better hospitals we have in 1962 than in 1952, and so on. And, for that matter, how many healthy and happy people there are still around who have never been to a specialist in their lives.

We think the kinds of thing Dr. Trussell is making a fuss about are going to pass into oblivion very soon. As our medical standards continue to be raised, we think they're bound to. It may take a little time—somewhat less in one place and somewhat more in another, but the writing is already on the wall for many of the less-than-perfect medical practices of even ten years back. So, in truth, we just can't get awfully upset about the Columbia group's findings.

What really concerns us, though, are the conclusions Dr. T. draws from his investigation—and one conclusion in particular. Says he: ". . . unless organized medicine takes steps right now to improve the quality of medical care under private insurance", the public can be expected to demand "a government-sponsored health insurance program." What bothers us so deeply is that, as regularly as night follows day, the Morningside Heighters (like a host of other "experts") offer some form of socialized medicine as the sole cure for every real or imaginary ill of our free system. "Doctors nowadays aren't pleasant enough!", says one, "If they don't change their ways, the government will have to step in." Concludes another: "Sometimes patients have to wait as much as an hour to see a busy practitioner. If they can't get quicker attention than that, they're going to ask Congress to do something about it." And so it goes. No matter what's wrong with *anything,* they claim, its remedy will be found on the Banks of the Potomac.

But why, we continue to ask, must the alternative always be a suggestion—even an insistence—that government has a corner on what's best? Can we name even one Federal program, past or present, which has proved to be a panacea? How about the postal system? It continues to lose more money every year! How about TVA? It's creating more problems than it has solved! And how about the so-called "Farm Program?" Paraphrasing a classic in dramatic criticism, shall we run the whole gamut of its achievements—from a to *b*? There is no need to. The abuses, the scandals and the regimentation which *this* "government-sponsored" plan has brought to agriculture are well-known to us all.

About a year and a half ago, we had a bit of bad news handed to us about our health and were told that major surgery was in order. One good friend advised us to head for Boston—others recommended New York or Philadelphia—where, they told us, we would be sure to get "the best of care". But we elected to stay in our own backyard, and to choose our doctor and our hospital from among those we knew and held faith in. We had Blue Cross and Blue Shield and a major medical plan, thank the Lord, but it never occurred to us to check out our choices with any of *them.* It's doubtful we would have done so even if we had thought of it.

But who knows, if we had read the Trussell report before going under the knife, maybe we would have decided to skip the whole thing and let nature take its course. Too many uncertainties! Too much risk! And if Uncle Sam had had a controlling finger in the pie, we *know* we'd have gone into hiding, untreated. After all, who could feel confident on his way to the operating room if he heard the hospital intercom blaring away: "Dr. Billie Sol! Call surgery! Dr. Billie Sol! Call sur . . . !"? We sure couldn't, no matter if he *was* government sponsored.

W. R. R.

COUNCIL MEETING

Wednesday, October 24, 1962

A meeting of the Council was held at the Society's building on Wednesday, October 24, 1962. The meeting was called to order by the Chairman, Ralph L. Gilman, at 2:30 P.M. Present, in addition to the Chairman, were: Drs. Deming, Goldberg, Hess, M. Caplan, Gardner, Scully, Wilson, Bradley, Cornwell Grendon, Grant, Davis, Chartier, Dean, Gorman, Egan, Abbot, Phillips and Hastings. Also present: Mrs. Lindquist, Dr. Richards. Absent were: Drs. Pitock, Cullen, O'Connor, Murray, Jr., Hughes, Martin, Sundquist, Gevalt, H. Caplan, Beardsley.

APPROVAL OF MINUTES. For the meetings of September 27, 1962 and October 14, 1962, it was VOTED to approve the minutes as printed.

EXEMPTION FROM PAYMNET OF DUES. It was VOTED to exempt from payment of dues for the duration of his physical disability, Julius H. Grower, Middletown.

LIFE MEMBERSHIP. On the basis of age and continuous membership in the Society, it was VOTED to transfer their status from Active Member to Life Member for the following:

Pinckney W. Snelling, Hyannis, Mass. (Hartford County)
Henry Katz, Hartford

PROGRAM FOR 1963 ANNUAL MEETING. Having received as information an outline of plans being made by the Program Committee for the 1963 Annual Meeting, the Council VOTED to advise the Committee as follows:

a. That the Council disapproves of one of the persons being considered by the Committee as a possible invitee to speak at the Annual Dinner.
b. That the Council approves of the proposal to offer an honorarium of $100 to each speaker participating in the Scientific Sessions.

ADVERTISING POLICY OF "CONNECTICUT MEDICINE." On being informed of an advertising policy favored by the Editorial Board of CONNECTICUT MEDICINE, it was VOTED (12-6) to approve the continued acceptance of advertisements for such products as tobacco and alcohol. The Editorial Board favored discontinuance of advertising of this nature.

AD HOC COMMITTEE ON ANIMAL RESEARCH. It was VOTED to appoint an Ad Hoc Committee on Animal Research as follows:

Averill A. Liebow, New Haven—Chairman
Roy N. Barnett, Norwalk
Edward L. Howes, Hartford
James W. Major, Willimantic
Louis H. Nahum, New Haven
Jasper A. Smith, Waterbury
Frederick J. Fagan, New London (from Committee on State Legislation)

The purposes of this Ad Hoc Committee will be to effectively organize and focus support for sound animal research legislation among the physicians of the State.

COMMITTEE ON STATE BLOOD BANK. It was VOTED to accept a series of recommendations offered by the Committee on State Blood Bank, and to transmit these recommendations to the component county medical associations for consideration and appropriate action. The intent of the recommendations is that each county association be requested to appoint an Advisory Blood Bank Committee which, working with local Red Cross Chapters, will attempt to assure physician coverage of Bloodmobile visits to local communities.

CONNECTICUT MEDICAL SERVICE, INC. Members of the Council received, as information, copies of pertinent current correspondence relating to the Amendment to the Preferred Contract. The Chairman read Commissioner Premo's reply to the letter the Council had directed be sent to him on October 14th. The letter from Mr. Premo follows:

"Dear Dr. Gilman:

I appreciate very much the views expressed in your letter of October 15, 1962. I want the opportunity to give your letter much time, thought and consideration before giving a decision. You have brought up some points I wish to explore and I shall advise you further within reasonable time.

Again thanking you, I remain,

Very truly yours,
ALFRED N. PREMO
Commissioner"

Pursuant to Mr. Premo's letter, it was VOTED to authorize the Chairman to offer the Insurance Commissioner an opportunity to discuss the matter referred to with representatives of the Society, should the Commissioner so desire. The Chairman stated that if such a meeting were held, he would plan to call on members of the Council's Liaison Committee with CMS to represent the Society.

A letter relative to joint public relations ventures with CMS (addressed to Dr. Deming from Mr. Coolidge, CMS President) was read.

AMA MEETINGS — THE NEW ENGLAND HOSPITALITY ROOM. Pursuant to comments offered by AMA Delegates and others on the operation of the so-called "New England Hospitality Room" at AMA meetings, it was VOTED to direct the Society's three Delegates to the Council of New England State Medical Societies to bring the following desires of the CSMS Council to the attention of the N. E. Council when next it meets:

a. That the CSMS Council is of the opinion that any functions or premises at AMA meetings which are financed jointly by the six New England state medical societies should be identified by the term "New England"; i.e., "The New England Hospitality Suite," "The New England Breakfast Room," etc.

b. That the CSMS Council is of the opinion that "guest cards" should be issued to all authorized representatives of the six medical societies, so that the opportunity to entertain guests can be shared uniformly by all delegates and other official representatives.

AUTHORIZATION FOR A SECTION ON NEUROLOGY. It was VOTED to approve the formation of a Section on Neurology of the Connecticut State Medical Society, under bylaws as submitted, and to recommend approval of the establishment of such a Section to the House of Delegates on December 4, 1962.

RESOLUTION ON THE PRACTICE OF MEDICINE. On May 23, 1962, the Council adopted the following Resolution (introduced by Dr. Grendon):

"BE IT RESOLVED: That the practice of pathology, radiology, physiatry and anesthesiology be recognized as the practice of medicine, to be engaged in by physicians rather than by hospitals, and be it further

RESOLVED: That this resolution be referred to the Five Agency Conference for whatever action is indicated to achieve this goal."

Pursuant to this action of the Council, it was VOTED to instruct the representatives of the Society to the Five Agency Conference to present this resolution to the next meeting of the group. It was further VOTED to request the Sections on Radiology, Anesthesiology, Pathology and Physical Medicine to appoint one official spokesman each, the four appointed spokesmen to be invited to the next meeting of the Five Agency Conference to discuss the resolution with the representatives of Blue Cross, Connecticut Medical Service, the Connecticut Hospital Association and the Health Insurance Council.

1963 CLINICAL CONGRESS. It was VOTED to approve the tentative date (September 27, 1963) and the program (Radioisotopes in Clinical Medicine) recommended by the Committee on Postgraduate Education, and it was further VOTED to approve the offering of honoraria to speakers at the 1963 Clinical Congress; $100 to out-of-state participants and $50 to those residing in Connecticut.

COMMITTEE ON PUBLIC HEALTH. It was VOTED to approve four recommendations of the Committee on Public Health and to publish same in the next issue of CONNECTICUT MEDICINE. A fifth recommendation on influenza vaccination was disapproved, on the grounds that the State Department of Health had already brought this information to the attention of Connecticut practitioners.

CONFERENCE ON CONNECTICUT 65 PLAN. The General Manager reported briefly on the information received by representatives of the Society from representatives of several of the insurance companies participating in the Connecticut 65 Plan, a meeting having been held in Hartford on October 22, 1962. With only eleven months of experience to review, it appears that the insuring agencies are encouraged both as to enrollment and operation. Further, more detailed evaluation of specific aspects of the Plan is being prepared and continuing conferences with representatives of the Society are contemplated.

CONFERENCE WITH COMMISSIONER OF WELFARE ON MAA (KERR-MILLS) EXPERIENCE. Dr. Max Caplan, Dr. Egan and the General Manager presented to the Council a general outline of the matters discussed by the Council's Ad Hoc Committee when it met with Commissioner Shapiro and Dr. Connors on October 16, 1962. A formal report on the meeting and the information obtained on MAA experience during the first five and one-half months of its operation is being prepared and will be made available to members of the Council and members of legislative committees at an early date.

ELECTION OF STUDENT MEMBERS. It was VOTED to approve thirty applicants for election to student membership.

MEMBERSHIP STATUS OF A MEMBER UNDER SUSPENSION. In reply to an inquiry from an insurer as to whether a suspended member of the Society could be considered to have any status as a member for group-insurance eligibility purposes, the Council VOTED to adopt the position that there is no objection to an insurer, at his own discretion, continuing to sell insurance coverage to a suspended member during the period of his suspension. Since there appeared to be considerable doubt among members of the Council as to the exact status of a member of the Society who is under suspension (by his county medical association, as well) it was VOTED to refer the question to the Council's Subcommittee to Study and Revise the Bylaws with a request that the Subcommittee attempt to define the status of a suspended member as to: whether he is, in fact, still a member; whether he loses all or only part of his "rights and privileges"; whether he should be expected to pay dues; etc.

LETTER OF COMMENDATION. Having had brought to its attention a featured newspaper article on over-65 health plans available and proposed for Connecticut residents, which appeared in *The Hartford Courant* for Sunday, October 20th, the Council VOTED to direct the Secretary of the Society to compose and send to the Editor of *The Hartford Courant* a letter of commendation on the excellence of the article, a copy of the letter to be sent to Mr. Thomas F. Walsh who researched the subject and wrote the article.

RESOLUTIONS TO BE INTRODUCED AT NEXT MEETING OF AMA HOUSE OF DELEGATES. It was VOTED to direct the Society's Delegates and Alternate Delegates to the American Medical Association to file and support two resolutions approved by the Council at the forthcoming November AMA Meeting in Los Angeles.

The Resolutions follow:

I. RESOLUTION ON THIRD PARTY AGENCIES AND PATIENT CARE

"WHEREAS: The numbers and types of third party agencies having to do with medical care and its financing continue to increase in the United States of America, and

WHEREAS: Apart from the commendable function of making payments for medical and health care services, third party agencies may exert or tend to exert varying degrees of influence on other important aspects of the practice of medicine, therefore be it

RESOLVED: That the House of Delegates of the American Medical Association reaffirm its opinion that the rendering of the highest quality of health and medical care to all persons is the primary objective of the American medical profession, and be it further

RESOLVED: That, in keeping with its corollary opinion that the free exercise of professional judgment by each individual physician is essential to the attainment of this objective, the House of Delegates of the American Medical Association urge each member of the Association to voluntarily sign the following pledge:

"I, (name), M.D., being engaged in the practice of medicine, do hereby renew my pledge to render to all of my patients the highest quality of health and medical care and to assist my colleagues to do the same. I pledge further that I will neither recognize nor be bound by any third party agency which, *in my opinion,* by regulation, restriction or otherwise, might tend to impede or prevent me from fully realizing these objectives, nor will I accept *direct* payment for my services from any such third party agency on the grounds that my acceptance might be interpreted as agreement to be regulated, restricted or otherwise hampered in maintaining the free exercise of my best professional judgment," and be it further

RESOLVED: That the House of Delegates of the American Medical Association request each member of the Association who voluntarily signs this pledge to place one copy on file with the Association's Executive Vice President and to prominently display a duplicate copy at his place of practice."

II. RESOLUTION ON INTERN QUOTAS FOR ACCREDITED HOSPITALS

"WHEREAS: The AMA Council on Medical Education and Hospitals accredits all internships and residencies, and has an internship review committee and a residency review committee, and,

WHEREAS: The present accreditation of internships in a given institution bears no numerical ratio to the number of beds in that institution and,

WHEREAS: It is statistically true that the medical school affiliated hospitals have internships per bed capacity far more numerous than the community general hospitals and,

WHEREAS: The latest report on the results of the Intern Matching Program for 1961-1962 (JAMA *181,* 1059: September, 1962) indicates that the nonaffiliated hospital is receiving fewer interns each year and,

WHEREAS: One reason for this trend wherein medical school graduates are not interning in community general hospitals is the obvious hoarding of interns by medical school affiliated hospitals, therefore be it.

RESOLVED: That the House of Delegates of the AMA direct its Council on Medical Education and Hospitals to establish a realistic Intern quota for each accredited hospital, based on bed capacity consistent with adequate teaching material."

DATE OF NEXT MEETING. It was VOTED to hold the next meeting of the Council on Thursday, November 15, 1962.

Student Members

Philip Bernstein, West Hartford
  Yale University School of Medicine—Class of 1966
David B. Bingham, Salem
  College of Physicians & Surgeons—Class of 1966
Alphonse R. Bobowick, Bridgeport
  Tufts University School of Medicine—Class of 1966
Arthur C. Burdett, Newtown
  University of Virginia—Class of 1966
Francis J. Cummings, New Haven
  University of Virginia—Class of 1966
Thoburn A. Dadisman, Jr., Riverside
  Yale University School of Medicine—Class of 1966
Vincent W. Dennis, Hartford
  Georgetown University—Class of 1966
James T. Devlin, Wapping
  Bowman-Gray—Class of 1966
Norman L. Fienman, Hartford
  State University of New York—Class of 1966
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Clinical Medicine

Collagen Diseases And "Domp"

LOUIIS H. NAHUM, M.D.
New Haven

SOME illnesses are episodic like acute infections but these are now coming under satisfactory control. It is natural therefore that the profession should become increasingly interested in those illnesses which have a prolonged clinical course and are frequently progressive. Among these are those that are reflected in changes in the collagen structures of the body and have come to be designated as collagen diseases although some are now skeptical as to the suitability of this name. Nevertheless the term collagen disease is widely used and subsumes such diverse clinical syndromes as rheumatoid arthritis, disseminated lupus erythematosis, periarteritis nodosa, dermatomyositis and scleroderma.

Because of the growing interest in this group of diseases, the number of articles appearing in the literature is so great that it is almost impossible for one reader to be familiar with it all. In a recent address by Kampmeier[1] several speculative questions are raised which must be kept in mind by the clinician, if his approach to these diseases is to be more than a mere routine of diagnosis and therapy. The excitement and intellectual satisfaction comes not from empirical practice regardless of how successful it may be but from an understanding of the known and unknown of the unsolved problems and the direction in which growth in the field is taking place.

The first question raised is whether collagen diseases are best considered as distinct clinical entities? When one first begins to explore into the fascinating area of the collagen diseases one is struck how difficult it is to establish a clear cut clinical diagnosis of any disseminated lupus or rehumatic fever or periarteritis nodosa and the "complete confusion that follows upon the pathologists report of variously distributed but apparently identical lesions." Such an experience can well shake ones confidence in his diagnostic ability. If identical lesions can be found in many apparently different clinical entities, then there "is a positive advantage" as Osler wisely stated, "in recognizing the affinities and the strong points of similarity in affections usually grouped in separate diseases." In the collagen disease there is also a clinical as well as pathological interrelationship. The alteration of the clinical course of apparently typical rheumatoid arthritis following treatment by corticosteroids, and their discontinuance, has been well documented by Slocum in 1953,[2] who found appearance of L. E. Cell phenomenon and also a terminal picture of periarteritis nodosa or systemic lupus. Kampmeier[1] himself described a patient whose course was followed for twenty-one years who at various times could have been diagnosed as dermatomyositis, disseminated lupus and periarteritis nodosa and at autopsy showed extensive and diffuse diseases of small blood vessels. It would appear at times impossible of categorically classifying a specific collagen disease because of the wide variability of the clinical course of each one and thus the seemingly interchangeable clinical and pathologic character.

The second question (Kampmeier) raises is whether the several collagen diseases are pathologically and immunologically distinct? Since all collagen diseases present visible alterations in the connective tissue system, more or less similar but each in a characteristic pattern, it seems desirable to await further knowledge as to the basic disturbances in connective tissue which is responsible for the morphologic characteristics found in the various diseases. Apparently the significant earmarks are related to nucleoproteins, desoxyribonucleic (DNA) and tyrosine-tryptophane, containing proteins. (Altrocchi)[3] Although Klemperer[4] has attempted to set forth Lupus Erythematosis as a distinct clinical and pathologic entity, the fact is that the clinical diagnosis in any given patient may vary widely over a decade or two of disease and if at a later date an L.E. test should become positive one must still be guided by the clinical picture rather than by a laboratory. Can one dismiss mixed clinical

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pictures as being contrary to a diagnosis of systemic lupus even when much in the clinical picture is present to substantiate the diagnosis? However, when glomerulitis is present in scleroderma or lupus then what should one think? It would appear to be more sensible not to depend too much on histologic evidence in a disease process characterized by clinical remissions and relapses, but wait until the factors not now known will be discovered by perhaps immunologic studies. Then we should be in possession of enough knowledge to decide whether the collagen diseases are really pathologically distinct.

A third question raised was whether there is truly an increased incidence of the collagen diseases. It is true that the anatomic characteristics have been known for a very long time, nevertheless, certain of the diseases have been considered clinical rarities until recently. There certainly is now an impression that the collagen diseases are on the increase. Is this increase relative, merely because the average age of patients on medical wards is twenty years older than twenty years ago when infectious diseases accounted for so many more young people in the wards. Does the apparent increase of rarer collagen diseases merely reflect an increased awareness of their existence. With the aid of the L.E. cell phenomenon our diagnostic acumen is better and it may be these diseases have always been with us, but we can more readily recognize them now. The chances however are strong that they are actually on the increase.

A fourth question raised concerns our present knowledge of the etiologic factors. The pathogenesis is still certainly a riddle, but the concept of autoimmunization and resulting antibodies are paving the way for an understanding. Much has been learned about the phenomenon of sensitization of tissues by antibodies and by drugs. Many proofs of sensitization have appeared since 1903 when Arthus described his antigen-antibody reaction. Rich[5] related periarteritis nodosa to the sulfonamides. Swift[6] postulated the lesions of rheumatic fever as being due to a sensitization to the streptococcus. Serum sickness following injection of horse serum has been recognized also as an antibody-antigen reaction with lesions quite analogous to that of rheumatic fever. Clinically the resemblance between rheumatoid arthritis and rheumatic fever are quite similar especially at its inception, and its relapses following episodes of infection of the upper respiratory tract.

Chemical substances themselves non protein and non antigenic can be made antigenic to induce specific hypersensitivity when the substance becomes linked with a protein of the blood. Over the years arsphenamine penicillin, chlortetracycline, sulphonamides, procaine, iodides, thiamin, streptomycin, aminopyrine, gold, sodium thiosulphate are but a few of the host of new pharmaceuticals given to us by synthetic chemists that are capable of producing hypersensitivity. It is now known that metabolites of certain drugs can combine with aminoacids especially lysine and cystine and produce sensitivity reactions especially in the skin.[7] Finally, the "Hydralazine Syndrome" of rheumatoid arthritis is now securely established as following prolonged use of the drug in moderately large doses. Although there are exceptions in which the arthritis may occur after smaller doses, in the latter case it may be difficult to differentiate true lupus from "hydralazine lupus."

Now that we know about the sensitizing ability of drugs and the accumulating information related to the collagen diseases, how do we correlate, these distinct but parallel types of information? Damashek[8] conceives of a drug attaching itself to the surface of a cell and altering it so that it becomes antigenic. Thus thrombocytopenia due to quinidine and other substances could result if they attached themselves to platelets making them antigenic and stimulate highly specific antibodies. This could cause thrombocytopenia. A similar process in which a substance attaches itself to a red cell could produce hemolysis. The same mechanism could occur in fixed tissue cells and has already been shown to occur in thyroiditis. Perhaps this is the way that hydralazine and penicillin produce "lupus-like" disorders by attaching themselves to connective tissue and causing an autoimmune reaction.

Since not all patients taking a particular drug become sensitive to it, the question remains why some patients become sensitive and others do not. Can it be we are up against a genetic tendency to a particular sensitivity? Much studies on rheumatoid arthritis point to a hereditary factor and to the fact that the disease may be on an autosomal dominant characteristic. The disease is certainly more frequent in relatives of patients with rheumatoid arthritis, than in the population at large. Certainly, epithelial hypersensitivity like asthma and hay fever have a high familial incidence, why not sensitivity involving other tissues like connective tissue which is under consideration in this report.

If we accept the concept of tissue injury as a potential pathogenetic factor in autoimmunization, then the warning dermatologists have given to patients with discoid lupus to avoid exposure to the sun makes sense. Repeatedly the onset of a disseminated course has occurred in such patients after sunburn. Dermatomyositis has been shown to present a relationship between exposure to sunlight and the onest of the disease. Likewise, lupus erythematosus is known to light up after exposure to sunlight. Stokes, Beerman and Ingraham[9] believe light is a well recognized physical allergen, and "the rich congestive vascular background and circulating light sensitizers (porphyrins) are brought in increasing amounts to congested areas especially bombarded by light rays." "The introduction of psoralins into medical practice stimulated a symposium in 1958[10] at which much of the knowledge on radiant energy was brought together and viewed from the standpoint of medicine. Covered were light-absorbing substances which catalyze photochemical reactions, the chemistry of melanin, light energy transferred to carotenoid pigments, proteins which transfer light energy to conjugated dyes and dyes which can pick up energy and transfer this to proteins.

Drugs may be photosensitizers such as phenothiazine derivatives, hydrocarbons, acridines, certain pyrimidines, quinine, p-aminobenzoic, diethylstilbestrol, sulphonamides, chlorothiazides and many others. When one recalls the enormous increase in the use of drugs in the last twenty-five years, it is not surprising that we should find ourselves with increasing numbers of cases of sensitivity reactions as well as collagen diseases. In 1945, 5,888,200 pounds of sulfonamide compounds were ingested. In 1958, 3,725,000 pounds were used but 391,574 billion units of penicillin were administered and 657,000 pounds of tranquilizers were sold. Is it any wonder that we see more and more drug sensitivities, and probably also more collagen diseases. Must we pay back part of the hard won gains from the use of the newer drugs by provoking new diseases, the Diseases of Medical Progress (DOMP). Perhaps the recognition of dangers implicit in the use of the new drugs which are foreign to the body will lead to a greater discrimination in their use, a development which would add pleasure to the doctor and less complications in our patients.

REFERENCES

1. Kampmeier, R. H.: Collagen diseases—unanswered questions on pathogenesis and etiology. Arch. Int. Med., 106: 753, December 1960.

2. Slocum, C. H.: Symposium on certain problems arising from clinical use of cortisone: rheumatic complaints during chronic hypercorticism and syndromes of withdrawal of cortisone in rheumatic patients. Proc. Staff. Meet. Mayo Clinic, 28: 655, 1953.

3. Altrocchi, P.: Systemic lupus erythematosis. J. Chron. Dis., 11: 34, 1960.

4. Klemperer, P.: The pathogenesis of lupus erythematosis and allied conditions. Ann. Int. Med., 28: 1, 1948.

5. Rich, A. R.: Hypersensitivity in disease: With special reference to periarteritis nodosa, rheumatic fever, disseminated lupus erythematosis, anud rheumatoid arthritis. Harvey Lecture Series 42, Baltimore, Williams-Wilkins Co., 1946-1947, p. 106.

6. Landsteiner, K. and Jacobs, J.: Studies in sensitization of animals with simple compounds 11. Experimental Medicine, 64: 625, 1936.

7. Davies, G. E.: Chemical structure and pharmacodynamic action in relation to drugs. Sensitivity, in sensitivity to drugs: A Symposium edited by M. L. Rosenheim and R. Moulton. Springfield Illinois, Charles C. Thomas, Publisher, 1958, p. 149.

8. Damashek, W.: Systemic lupus erythematosis: A complex autoimmune disorder. Ann. Internal Medicine, 48: 707, 1958.

9. Stokes, J. H., Beerman, H., and Ingraham, N. R., Jr.: The lupus erythematosis concept: An attempt at integration. Am. J. M. Sc., 207: 540, 1944.

10. Proceedings of a Symposium on Psoralens and Radiant Energy. J. Invest. Dermatology, 32: 132, (Feb., Pt. 2), 1959.

NOTES ON TOXEMIA OF PREGNANCY

Subcommittee On Toxemia of the Committee To Study Maternal Mortality And Morbidity

Franklin H. Epstein, m.d.
Clarence Davis, m.d.
New Haven.

The Patient

The patient was a 37 year old white woman, gravida 4, para 3. One previous pregnancy resulted in premature delivery and the baby died at birth.

Three weeks prior to admission, in her 33rd week of pregnancy, a prenatal checkup showed 3-4 + proteinuria. The blood pressure was 150/90. She was told to take a salt-free diet and sent home. Two weeks and one week prior to admission the blood pressure was said to be normal but albuminuria persisted.

On the day of admission the patient complained of epigastric cramps, vomited and had a generalized convulsion.

When admitted to the hospital she was unconscious and convulsing. The blood pressure was 255/110. There was edema of the hands and ankles. The fetal heart was heard at 144/minute in the right lower quadrant. A catheterized urine showed 4 + protein, a specific gravity of 1.030 and 15-20

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wbc/HPF. She was given nasal oxygen and an airway was put in place. Six cc. of 50 per cent $MgSO_4$ were given intramuscularly during the next two hours. 20 cc. of 0.4 per cent sodium pentothal were given slowly in an intravenous drip. During the first five hours in the hospital she reecived 80 cc. of 10 per cent glucose I.V. Convulsions recurred every 10-20 minutes. Transient generalized hypotension (110/70 MM. Hg.) followed the first injection of $MgSO_4$ but hypertension reccurred and reached a level of 190/120, 6½ hours after admission. An hour later she died. Permission for a post-mortem was not obtained.

Comment

This patient was obviously in serious trouble three weeks before the appearance of eclampsia. Had she been hospitalized at that time, the outlook would probably have been different. The large numbers of white blood cells in this patient's urinary sediment on admission suggests that eclampsia may have complicated a pre-existing pyelonephritis. The appearance of proteinuria in the last trimester of pregnancy is a grave danger signal that must not be ignored. Although hypertension usually accompanies and frequently precedes proteinuria in toxemia of pregnancy, the reverse may be true, as in the present case. The significance of a *rise in blood pressure,* even though "hypertensive levels" are not reached, should be emphasized.

Two essential features of the emergency treatment of eclampsia are effective therapy against convulsions and against severe hypertension. The two are by no means synonomous; blood pressure may be lowered to shock levels (which frequently precipitates acute renal failure) without controlling convulsions. The chief purpose of treating an explosively high blood pressure is to reduce the likelihood of cerebral hemorrhage. Though post-mortem confirmation was not available, it seems most probable that a cerebral accident was the cause of death in this patient.

Magnesium sulfate is a good anticonvulsant and may be administered intravenously as a 2 per cent solution or intramuscularly as a 50 per cent solution, as long as deep tendon reflexes are present. It is not a very effective hypotensive agent. Sodium pentothal, or other general anesthesia, may occasionally be necessary to control convulsions. Adequate oxygenation should be assured.

It cannot be emphasized too strongly that eclampsia is more easily prevented than treated. The appearance of signs of toxemia of pregnancy should prompt early admission to the hospital and specialized consultation in order to prevent the tragedy epitomized in the case presented above.

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NEW BOOKS IN REVIEW

SURGERY IN WORLD WAR II. Activities of Surgical Consultants Vol. I. Published by Medical Department, U. S. Army. Colonel John B. Coates, Jr., M.C., Editor-in-Chief. Superintendent of Documents, U. S. Government Printing Office, Washington, D. C. 621 pp. $6.50.

Reviewed by: DENIS S. O'CONNOR

Anyone whose service in World War II, with a perspective of the problems of medical departments, cannot but marvel at the accomplishments of the surgical consultants division of the Surgeon's General's office in bringing to the members of the armed forces the high quality of medical care which civilian medicine had to offer.

The quality of the men who composed the consultant group is evident to anyone conversant with the surgical leadership of the country at the outbreak of World War II. It is remarkable to note the uniformity in the reported problems by each consultant. That pilonidal sinus should have accounted for so many days of manpower ineffectiveness and hospital bed occupancy would seem inexplainable were it not for the realization of the underlying faulty placement of medical personnel and the latter's lack of appreciation of military medicine.

The reviewer is convinced, as he has been since World War I, that immediate effectiveness in time of war can only come from peacetime familiarity with military service. In other words, members of the medical profession, as well as citizens in general, must find their place in the scheme of national defense and be prepared to fill it. This would not eliminate the need for the co-ordinating and elevating work of the surgical consultants but it could eliminate some of their problems such as misdirected, and low quality surgery, poorly assigned personnel and lack of distribution of developing medical knowledge.

Like the previous published volumes of medical World War II history, this volume has much which if properly applied can save valuable time and produce a higher quality of surgical care for the boys who must place their faith in our hands.

IRRITATION AND COUNTERIRRITATION by Adolphe D. Jonas, M.D. Vantage Press, Inc., New York, 1962, 368 pp. $7.50.

Reviewed by: DENIS S. O'CONNOR

The reviewer was fascinated by the hypothesis put forth by the author as a basic explanation of somatic disease but as so frequently happens with lecturers and authors who are highly specialized in their fields their choice of words and their involved sentence structure is so lacking in clear definition of thoughts that understanding is difficult, if not impossible.

The thesis of this book is that the central nervous system, when beset by irritation, is able to pass it off on one of the physical systems of the body and if that system, or organ, cannot handle the problem disease of that organ results.

No one will deny the influence of the central nervous system on the various organs of the body and the disturbance of function, or the abnormal functioning of the brain, on organs but it is difficult to accept the theory that all physical disease arises in this way.

It is unfortunate that the choice of words and involved sentence structure makes the reading of this book difficult because I am sure that even though we reject the author's thesis, there is much in the material presented which one could accept.

Because of the defects in presentation one could not recommend this book for general reading though doubtless someone in the field of psychiatry would find it valuable.

HYPERTENSION: Recent Advances. The Second Hahnemann Symposium on Hypertensive Disease. Edited by Albert N. Brest, M.D., and John H. Moyer, M.D. Lea & Febiger, Philadelphia, Pennsylvania, 1961. 660 pp.

Reviewed by: LOUIS H. NAHUM

In a previous symposium on this subject held in December 1958 at Hahnemann, all participants agreed that considerable progress had been made although the specific causative mechanisms and definitive therapy of hypertension remained elusive. Two and one-half years later in May 1961 enough new data had accumulated to justify a reconsideration of this subject. The participants in this symposium included medical authorities from throughout this country and abroad and the publication of the proceedings was made possible through a generous contribution from Ciba Pharmaceutical Products, Inc., from Summit, New Jersey.

The major achievements during the past few years have included newer knowledge of catecholamine metabolism and an improved understanding between arteriosclerosis and hypertension. In addition, all the presently known facts and theories of the natural history, etiology and pharmacology of hypertension are reviewed. In all, 117 contributors have participated.

The book is composed of seven parts. Part I deals with the natural history of hypertensive diseases. Part II with etiological mechanisms in hypertension. Part III is devoted to atherosclerosis and hypertension. Part IV deals with the pharmacology of hypertension and a consideration of diuretics, rauwolfia, hydralazine, veratrum, adrenergic and ganglionic blocking agents. Part V devoted to catecholamine metabolism. Part VI deals with drugs which affect catecholamine metabolism and Part VII with therapeutic considerations.

There is not an aspect of hypertension that does not receive authoritative coverage and most of the communications consist of basic science investigations of a high quality. After each part is a modest discussion such as the one at the end of Part VII when the criteria for surgical treatment of hypertension are discussed and virtually agreed upon, that renal artery stenosis should be repaired by an autogenous veingraft and those cases of severe hypertension that do not respond to medical measures should have a bilateral sympathectomy from D8 to L1 before too much time has elapsed.

This book has a lot of new work and many answers to a lot of questions that a student of hypertension is likely to ask. It should be in every library, read by every medical man and vascular surgeon.

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DAY HOSPITAL by Bernard M. Kramer, Ph.D. Grune & Stratton, New York, and London, 1962, 103 pp. $2.75.

Reviewed by: THOMAS DETRE

This small volume has been written by, Dr. Kramer, a social psychologist, who has studied the operation of the Day Hospital at the Massachusetts Mental Health Center between 1958-1959. The author, believes that severely ill psychotic patients have been and can be cared for without full-time incarceration in mental hospitals. In his estimate 75 per cent of acute patients now hospitalized full-time could be handled on a day basis. '24 hour total institutions" according to Dr. Kramer are not only increasingly viewed as possibly harmful to patients but the financial and social cost is also becoming increasingly bothersome for the society.

In the first chapter, Dr. Kramer, presents the developments of the Day Hospital movement in historical perspective and includes many experiences from the continental United States as well as from Europe. In the subsequent chapters he outlines the history of the Day Hospital at the Massachusetts Mental Health Center describing the plan, the personnel, the staff interaction, activity program and so on. The concluding chapters deal with the therapeutic and administrative problems involved in operating a day hospital. Unfortunately, at this point, the tone of the book suddenly switches from the descriptive to "scientific." Since the material was obtained from informal interviews held by the author, "crossed checked with impressions of colleagues familiar with the setting in hope of insuring a reasonable degree of accuracy in representativeness," some points raised by the author by necessity remain poorly documented. For example, the issue of what beds mean for mental patients and how this introduces regression in the process of treatment is highly over-emphasized. In many large institutions dormitories are frequently locked during the day and patients still regress. The success of the Day Hospital, if it is a success, results from advancement in many of the areas of treatment. In fact, "full-time" hospitalization need not to mean isolation for patients and families in the community. Whether this isolation will be increased, reduced, or practically eliminated probably depends on the ongoing therapeutic program rather than a particular set of constructs called a day hospital. While partial hospitalization may discourage relatives from abandoning the patient if such patients have to stay for four to twelve months one wonders if patients and families might not use the facility to promote regression rather than to accept family or community responsibilities. The poster illustration in the activities program chapter certainly describes a full program but creates the impression that it might be available but was not actually in operation. It is debatable how valuable the whole concept of "work" is in contrast to emphasis on "socialization" and raises the question whether the day hospital is not indeed just another sheltered workshop.

Similarly, one wonders whether better organized follow-up programs can be offered to discharged patients in order to reduce their admission to an inpatient or day hospital. In fact, partial hospitalization in an active inpatient program may have advantages over the Day Hospital, as it does not subject the patient and his family to a time consuming period of having to begin treatment again with another set of staff members. In reviewing the volume one has the feeling throughout that day hospitals have been geared to chronic patients in spite of the fact that information has been gathered about carefully selected "directed admissions" in the community. In spite of some of these shortcomings, however, the presentation of the material is interesting and would serve as a valuable guide for those interested in experimenting with day hospitals.

STRABISMUS, Symposium of the New Orleans Academy of Ophthalmology. Edited by George M. Haik, M.D. Published by the C. V. Mosby Company, St. Louis, 1962, 369 pp. $18.00.

Reviewed by: R. M. FASANELLA

The 11th Annual Session of the New Orleans Academy of Ophthalmology was the second to be devoted to strabismus. The speakers included Dr. Raynold N. Berke, Harold W. Brown, David G. Cogan, John W. Henderson, Arthur Jampolsky and Marshall M. Parks. These men are noted clinicians and teachers and each is an authority in his special field.

The contents of this book, fourteen chapters plus a round table discussion, will be of interest to every ophthalmologist who is concerned with the diagnosis and treatment of extraocular problems. There are approximately two hundred illustrations. The problems of the extraocular muscles are discussed in terms of the modern concepts of neuro-anatomy, physiology and neurology. The book includes chapters on the more common esotropias, exotropias, hypertropias and special consideration is given to the A and V syndromes, the accommodation ratio and pleoptics. To the practicing ophthalmologist perhaps the most outstanding and stimulating feature of the book is a round table discussion wherein the management of strabismus is discussed in terms of the most modern concepts.

Dr. Jampolsky does an excellent job of discussing the A and V syndromes and stresses the practical conclusions. I was especially impresseed with the chapters by Dr. Raynold N. Berke on the "Principles, Technic and Complications of Horizontal, Non-paralytic, Non-accommodative Strabismus Surgery" and his chapter on "Surgical Treatment of Hypertropia." There are many "surgical pearls" in these chapters. Equally excellent are the chapters by Dr. Harold W. Brown entitled, "Aids in the Diagnosis of Strabismus," "Strabismus in the Adult," and "Complications of the Surgical Management of Strabismus."

This book is not intended for the general practitioner nor for those ophthalmologists who are not interested in the problems related to strabismus. However, every ophthalmologist who concerns himself with these problems will find a wealth of material that brings him up to date in this phase of ophthalmology.

DISEASE AND INJURY. Edited by Leopold Brahdy, M.D. J. B. Lippincott Company, Philadelphia, Pennsylvania, 1961, 482 pp. $12.50.

Reviewed by: LOUIS H. NAHUM

The book consists of fourteen chapters and an index of eighteen pages. The chapters cover injury in every organ system from mental disease, diabetes, heart disease, peripheral vascular disease, lung disease, genitourinary tract disease, gastrointestinal tract disease, obstetrics and gynecology, neoplasm, the skeletal system, articular and related disorders and the thyroid gland.

In the first chapter Brahdy lays down criteria that needs to be satisfied in order to relate injury as a cause of any disease. 1. The physical and psychic condition of the patient before the injury. 2. The type, the site and the severity of the injury. 3. The immediate effects of the injury. 4. The bridging symptoms or course of the traumatic symptoms from the time of the injury to the onset of the disease. 5. The latent period of the disease—the time interval between the occurrence of the injury and the appearance of the disease—"the intercalary period." 6. The diagnosis of the disease—its mode of onset, the site of its onset and its course.

When an examination of a patient is made, when there are no longer direct evidences of injury, but only an internal disease is manifested then a thorough knowledge of the relation of the injury to disease is needed. No physician in the course of his practice escapes the occasional need to decide on the role of injury in causing or aggravating or precipitating a disease. This is especially true now that Workmen's Compensation Laws are in effect in every state and almost every physician at times encounters the need to render an opinion on the casual relationship of an injury to a disease. In such situations, this book by Brahdy is an indispensable guide.

A similar book by Kahn and Brahdy was published in 1937 and titled "Trauma and Disease." But much experience has accumulated since then and the knowledge of some aspects of disease have been augmented and opinions have been modified. For example, extensive burns can cause duodenal ulcer unsuspected twenty-five years ago. We must unlearn that contusion of the breast leads to cancer. The once prevalent myth that every physical stress is detrimental to a cardiac is now almost forgotten. Pregnancy, no longer interferes with normal activity and lifting is not a factor in spontaneous abortion. It is obviously high time for a new edition and Brahdy has obtained experts that speak with authority in each medical field.

Although the book is written for physicians, lawyers will find it most useful also, since reading and discussing the relevant chapters in this book with a physician will give them a better understanding of the subject, and render communication with the physician more profitable. When lawyers have knowledge of the subject in question and of the medical terminology, many tensions and misunderstandings between lawyers and doctors will either lessen or vanish. Truly this is a book that every physician will need to be guided by at some time or other in his practice.

A SYSTEM OF MEDICAL HYPNOSIS, by Ainslie Meares, M.D., President, International Society for Clinical and Experimental Hypnosis, W. B. Saunders Co., Philadelphia, Pa., 1960, 484 pp., $10.00.

Reviewed by: LOUIS H. NAHUM

This book could appropriately be called a text-book but the author did not do so because he states that "A text-book should give a description and evaluation of all current theories and practices" whereas in truth this is a personal document aimed to describe medical hypnosis as he practices it.

The author is a celebrated psychiatrist who has published several other books such as "Medical Interview," a study of clinically significant interpersonal reactions; "Hypnography," the therapeutic use of painting; "The Door of Serenity," the therapeutic use of symbolic painting; "Marriage and Personality," a psychiatric study of interpersonal reactions; "The Introvert," a psychiatric study of social adjustment; "Shapes of Society," therapeutic uses of modelling in the waking and hypnotic states.

Although hypnosis for a long time lost ground because its practitioners were without an understanding of the psychodynamics of the condition being treated it really received its greatest set-back when Freud rejected it in favor of free association. Since the War a revival in medical hypnosis has occurred especially in hypnoanalysis which promises greatly to shorten the time and cost of deep psychotherapy. It has also gained in prominence in suggestive therapy so that many cases critically selected could probably be helped and greater general use of non-specific suggestion may be expected. Finally much remains to be learned concerning the educative value of the hypnotic experience.

We see a revival of hypnosis especially in dentistry. And as movements in general swing too far, it is even being exploited in surgery where there is little place for unaided hypnosis and where the practitioners in surgery have gone hysterical. In obstetrics, hypnosis is often used in an irresponsible fashion although its enlightened use probably represents the ideal way for a woman to have her baby.

If there is widespread need for some form of hypnosis in various areas of medicine, how are our students and graduate students to learn about it? Orthodox medicine founded in pathology was slow to introduce psychiatry into the medical curriculum and one may expect similar resistance to teaching hypnosis as an arm of therapy.

A student needs knowledge about the nature of hypnosis and its psychodynamics. He should learn the techniques of relaxation and hypnoidalization. He needs these with painful office procedures, simple cases requiring reassurance and suggestion, for midwifery, for pre-operative and post-operative managements. These he can perform without falling victim to the possible complications of full hypnosis.

The medical graduate can become fully qualified as a psychiatrist with no experience or training in hypnosis. Unless this is done, however, there is real danger of inadequately trained or even untrained practitioners engaging in medical hypnosis, for as the benefits become understood, the vacuum will be filled by unskilled practitioners and even charlatans. For a physician must do more than employ medical technology in dealing with a sick or disturbed person. He needs to help his patient to a sense of purpose and individual dignity. He can help his patient sleep without sedation, feel calm without tranquilizers, experience pain without the hurt and suffering of it. What else might it be able to do? Perhaps in the distant future it might help to fulfill his biological heritage of love and aggression to benefit both himself and those around him. This is the future dream.

The book is composed of five sections with a total of 57 chapters. Section I is devoted to the nature of hypnosis. Section II, how to induce hypnosis. Section III deals with suggestive therapy in general and its techniques and com-

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An outstanding coordinative feature of this work is the liberal use of crystal-clear illustrations all drawn by a single artist, *Janis Cirulis.* This is a volume that every practitioner will want on his shelf as an excellent reference on the principles of modern surgery.

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plications. Section IV covers hypno-analysis, its general principles, practice, special techniques, dangers and complications. Section V covers hypnosis in general medicine—such as relief of pain, insomnia in anesthesia, obstetrics, gynecology, incurable illness, psychogenic obesity and alcoholism. At the end is an evaluation of the place of hypnosis in medicine; the present and the future.

There is little doubt that much of the current writing in hypnosis suffers from too narrow a confinement to the special and particular problems of hypnosis and lacks a broader background of extensive practice in psychiatry. From Bernheim down to the present time successful and dramatic cures have received much space while the analysis of the psychodynamic mechanisms that brought the cures about are neglected. So also are the failures and why they have occurred. Much can be learned from failures when cases have not gone well, and therefore those matters of technique which brought them about are as important as the successes, although these latter may be of prestige value to the authors.

It is obvious that the operator should have a working knowledge of the psychodynamics of the hypnotic state and with modern concepts of the nature of hypnosis. As is to be expected in learning, past knowledge leads to present understanding and the author has wisely undertaken a brief but critical survey of past methods of inducing hypnosis so that such experience may be used in evolving the methods of the present day.

The author believes and with much reason that hypnotherapy is a highly integrated procedure and that each step must be made in such a way as to facilitate each succeeding step. During the interview the patient's suggestibility is assessed and the most satisfactory method of inducing hypnosis accordingly determined, for each patient requires a particular attitude the operator must use to induce hypnosis.

This book is an excellent text for one who sincerely wishes to understand the psychodynamics upon which hypnosis is based, the manner of employing it and its uses and abuses, its benefits and its dangers.

CURRENT PSYCHIATRIC THERAPIES — Volume I, 1961. Edited by Jules H. Masserman, M.D. Grune & Stratton, New York, 1961, 246 pp., $7.50.

Reviewed by: LOUIS H. NAHUM

The editor is professor of neurology and psychiatry, Northwestern University and Director of Education, Illinois State Psychiatric Institute, Chicago. The contributors are all outstanding leaders in their field and the book is a thorough review of current psychiatric therapies on the campus, in the hospitals, in child centers, in the community. There are eight parts, Part 1 deals with preventive psychiatry; on the campus a suicide prevention center, alternatives to hospitalization. Part 2 is devoted to child and adolescent therapies; management of acute conversion reactions in children, scrupulosity; religion and obsessive-compulsive behavior in children; day treatment of adolescents and an adolescent treatment service in a state hospital. Part 3 is devoted to psychophysical methods; and covers psychopharmacology, drugs, repetition of verbal sequels in therapy, clinical management of depression and electro-convulsive therapy. Part 4 deals with psychoanalysis. Part V with couples and group therapy. Part 6 with clinical institution and community. Part 7 with after care programs and Part 8 with a review and integration by the editor, taking up the question of anxiety and the art of healing.

It is clear enough that the book contains special contributions from experts in therapeutic subspecialties of psychiatry. The therapeutic procedures constitute the major theme of each chapter. The results, immediate and long term, are difficult to come by and while indicated here and there this aspect seems to be the one requiring the greatest attention in the future.

The final chapter by the editor "Review and Integration" anxiety and the art of healing, is a wide-ranging scholarly and excellently worded summary of the experimental state of psychiatry. The relation of psychiatry to art, literature and philosophy. It ends with a non-hippocratic oath—

"First that we shall search and research for deeper wisdoms and higher skills for the ultimate benefit of our patients.

Second that we shall extend the golden rule by being better friends to those who rely upon us, than we can expect them, immediately at least, to be to us.

Third, that we shall respect and conserve the heavenly serenity vouchsafed to mortal man by his belief in his own future divinity among his many visaged gods. Perhaps through this more humane and inclusive faith we too shall merit our share of peace and grace here on earth"—. This clearly is a philosophy of psychiatry. Since philosophy is a stage in the development of knowledge and is an effort of synthesis out of a wide range of experimental accumulations, we begin to see that psychiatry has grown extensively, both in experimental and speculative realms. It is this that is made clear by the fine essays in this book.

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The AMA-ERF Story

The American Medical Education Foundation was established in 1951 for the purpose of providing financial assistance to medical schools; and in 1952 AMEF became a project of the Auxiliary to the American Medical Association, giving us a wonderful opportunity to participate in a program uniquely ours. The American Medical Research Foundation was established in 1957 for broader purposes, including the provision of financial assistance to medical schools.

On January 1, 1962 the programs of AMEF and AMRF were consolidated within the framework of a single Foundation, American Medical Association Education and Research Foundation. This Foundation is incorporated under the laws of the State of Illinois as an educational, scientific organization. All contributions to AMA-ERF are tax deductible. The affairs of this Foundation are managed by a Board of Directors elected annually by and from the membership of the Board of Trustees of the AMA.

In June, 1962 the AMEF Committee of the Auxiliary became the AMA-ERF Committee with objectives paralleling those of the Foundation. The Auxiliary this year is seeking funds to support these two Foundation programs: (1) Funds for Medical Schools (the former AMEF program) and (2) Loan Guarantee Fund, providing assistance in financing loans to medical students, interns and residents.

In the past ten years the Woman's Auxiliary has contributed over one million dollars to medical schools through the AMA-ERF program. However, the need continues to be greater than the amount which we obtain. A medical student's tuition pays only 18.2 per cent of the medical education. Thirty to 40 per cent of a university budget must be alloted to a medical school if it is to function properly. Yet the medical school graduates less than 10 per cent of the entire student body. Private support, therefore, is necessary if medical education is to remain at its present high level. An expression of loyalty in the highest American tradition is that of physicians leading all other professional graduates in support of their schools.

The Funds for Medical Schools project provides yearly grants to each of our 85 medical schools. Each school receives contributions which have been designated for it plus an equal share of undesignated funds. There are no restrictions on the use made of these funds by the deans of the medical schools. They are unmarked and may be used where most needed.

The Loan Guarantee Fund provides financial support at any period of their training for medical students, interns and residents; thereby helping qualified persons to continue their education. The doctors alone cannot meet this great need; they have asked for and must have our help.

What can we do to help? We can work. We can make known the program of the Foundation and raise money to meet the growing needs. Every Auxiliary member should be aware of the need and every county should promote at least one fund-raising project.

If each of our 80,000 members would use one "In Appreciation" or "Sympathy" card this year, a sizeable investment in medical education would be made.

At the National Convention each year, awards are made not only to the states but also to the counties for outstanding work. Let us "aim for excellence in achievement" in securing funds for medical security.

OBITUARIES

George Eugene Cogan, M.D.

1897 - 1962

The life of a physician, is a combination of hard work, golden opportunities, good deeds, sacrifice and study. Such it was with Dr. George Eugene Cogan, who died October 4, 1962 at St. Francis Hospital, Hartford, after a long illness.

He was born April 18, 1897, in Bayonne, New Jersey, son of the late James J. and Mary Elizabeth Gerry Cogan. Dr. Cogan obtained his early education in Bayonne, and showed an early aptitude for things scientific. He graduated from Georgetown College, Washington, D. C., class of 1919, and from Georgetown University Medical School, Class of 1923.

Dr. Cogan interned at St. Francis Hospital, Hartford, Connecticut. He was a friendly meticulous, studious and a hard working young doctor. In choosing gynecology and obstetrics as his specialty, he began the required study and practice, first as resident in gynecology and obstetrics at Georgetown University Hospital in Washington, D. C., followed by a similar study at Columbia Hospital for Women, also in Washington, D. C., and then to Bellevue Hospital Out-Patient Department for Women, in New York City.

Now fully trained in his chosen field, Dr. Cogan returned to Hartford to begin the practice of gynecology and obstetrics exclusively. Here his usual talents, training and personality blossomed into an enviably successful practice. He served as chief of gynecology and consultant in obstetrics at St. Francis Hospital, attending gynecologist at McCook Memorial Hospital, consultant in gynecology and obstetrics at the Institute of Living, and was a member of the courtesy staff of Hartford Hospital. He was one of the founding members, and diplomate of the American Board of Obstetrics and Gynecology. Dr. Cogan was president of the medical and surgical staff of St. Francis Hospital in 1949. He was also a Fellow of the American College of Surgeons, held active membership in the Knife and Stork Club of Connecticut, as well as in the city, county, the Connecticut State Medical Society, the American Medical Association, and the New England Obstetric and Gynecology Society.

Dr. Cogan was appointed a commissioner of the Hartford Health Board by the late Mayor Thomas J. Spellacy, in 1935, serving three years, two of them as president. In this capacity he took an active part in the reconstruction in Hartford following the great Connecticut River flood of 1936. He was a communicant of the Cathedral of Saint Joseph in Hartford. He was a trustee of Albertus Magnus College in New Haven, a member of the board of advisors of the Robinson School in West Hartford, a member of the Graduates Club of New Haven, the Farmington Country Club and the Avon Country Club. He was appointed a colonel on the staff of former Governor Hurley, and served in the Naval Air Corps as a fleet officer in World War I.

He leaves a brother Clement and a sister Mrs. Peter O'Connor, both of Bayonne, New Jersey; a brother Frank Cogan, D.D.S. of Farmington, Connecticut, and several nieces and nephews.

Dr. Cogan suffered a long illness, but bore it nobly. Few knew of his affliction because he was not one to seek sympathy, and carried on as usual in his gracious, kind and understanding way. When the final moments of life approached, he seemed to make a silent prayer—Thy will be done—as he closed his eyes forever.

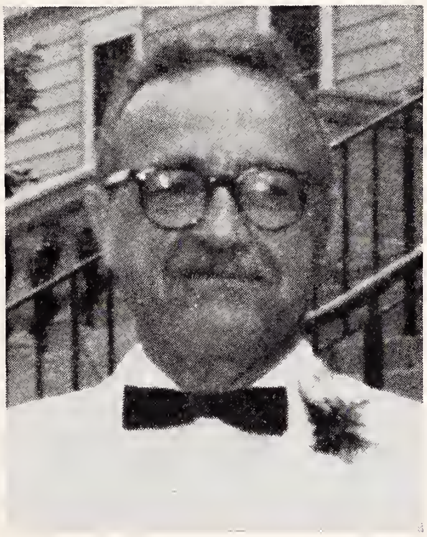
Those of us, who were privileged to be associated with Dr. Cogan, know him as a man of many wonderful qualities. He was known not only for his professional ability, but also for his humility, and kindness to the poor and to the afflicted. He was satisfied with nothing less than perfection in everything he did.

Charles W. Daly, m.d.

Joseph Magnano, M.D.

1901-1962

Dr. Joseph Magnano died in his sleep at his home in Middletown on October 28, 1962. A Middletown native, Dr. Magnano attended local schools and Wesleyan University, where he obtained his B.A. degree in 1923. After receiving his M.D. at Yale in 1927, he interned for two years at St. Raphael's Hospital in New Haven.



Upon returning to Middletown, Dr. Magnano began the general practice of medicine, but soon directed his interest and efforts toward anesthesiology. As this specialty grew, he chose to keep pace. In times when the administration of anesthesia was often the unsought task of nurses, house staff, or the occasional available physician, Dr. Magnano organized and developed a department. He was one of the early champions of spinal anesthesia in the state, and was among the most skilled in its administration by the continuous method.

Since 1956, Dr. Magnano had limited his practice to anesthesiology. As chief at Middlesex Memorial Hospital, he guided the growth of his department and the specialty in the area. In addition, he served as attending anesthesiologist at Connecticut Valley Hospital, Waterbury Hospital and Rocky Hill Veteran's Home and Hospital. He was a Fellow of the American College of Anesthesiologists and the International College of Anesthetists.

He is survived by his wife, Mrs. Carolyn Davis Magnano; two sons, Joseph A. Magnano and John V. Magnano; and one daughter, Mrs. Paul (Una) Kelly; all of Middletown.

His work will be carried on and his goals pursued by those who were privileged to work with him. His untiring devotion to professional performance and the respect and affection of patients and colleagues alike will remain his alone.

William F. Bauer, Jr., m.d.

In Memoriam

Burgdorf, Alfred L.—Hartford; Rush Medical College, 1931; Dr. Burgdorf served as Hartford Health Director for 22 years, and also in West Hartford simultaneously. Dr. Burgdorf was a fighter for better health projects and as health director he proved how effective an energetic, articulate and public relations-conscious medical man can be in raising community health standards. He was appointed epidemiologist of the State Health Department in 1934. He also served Connecticut as director of the department's Bureau of Venereal Disease. During recent years, Dr. Burgdorf was in the fore of local efforts in behalf of the American Cancer Society, for which he was presented a special award in recognition of his leadership. During World War II, Dr. Burgdorf was known for his "War Gardens" program, which was a program of participating in the war effort on the home front and it assured better diet and more exercise for the participants. Dr. Burgdorf died of leukemia on October 15, at the age of 60.

Doctor's Office

Hans S. Menco, M.D., announces the opening of an office for the practice of general medicine at 433 Main Street, Manchester.

Jaroslav K. Turkalo, M.D., announces the opening of an office for the practice of general surgery at 1836 Noble Avenue, Bridgeport.

Frank R. Vanoni, M.D., announces the opening of an office for the practice of general medicine at 24 Church Street, Torrington.

Guy Van Syckle, M.D., announces the opening of an office for the practice of radiology at 30 Hospital Avenue, Danbury.

Special Notices

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March 24-29, 1963

American College of Allergists Graduate Instructional Course and Nineteenth Annual Congress, March 24-29, 1963, Americana of New York, New York City. For further information, write to: John D. Gillaspie, M.D., Treasurer, 2141 14th Street, Boulder, Colorado.

RECOMMENDATIONS OF COMMITTEE ON PUBLIC HEALTH

(Approved by the Council — October 24, 1962)

1. The Committee on Public Health recommends that since it is recognized that many adults in Connecticut have neglected to maintain their immunized status against certain diseases or have never received primary immunization against these diseases, and since adults may be more susceptible to or more severely ill with certain diseases, and since the possibilty of the spread of communicable diseases by international travelers is recognized, physicians in the state make especial efforts to immunize their adult patients as follows:

A. Smallpox—All who have not been vaccinated within the past 5 years, and particularly all physicians and nurses and all employed in air, sea, or ground transport facilities.

B. Tetanus—All who have not received tetanus toxoid within the past 5 years.

C. Poliomyelitis—All up to 50 years of age who have not received Sabin oral poliomyelitis vaccine.

D. Influenza—All those with chronic illness, all pregnant women, and all over 45 years of age, annually in the fall.

2. That the medical profession and health departments have a joint responsibility in the control of venereal disease.

3. Inasmuch as the diagnosed cases of syphilis, gonorrhea, and other venereal diseases are required to be reported by physicians to directors of health in Connecticut; and since there has been a three-fold increase of infectious syphilis (primary and secondary) since 1955 in Connecticut and the U.S. Public Health Service has reported a similar increase throughout the country; and the reported cases of gonorrhea among teenagers in Connecticut increased from 128 in 1956 to 227 in the calendar year 1961; the Committee on Public Health recommends to the Council of the Connecticut State Medical Society that it instruct the physicians of the state to:

A. Use to the fullest extent effective methods now available to control venereal diseases.

B. Cooperate with the Directors of Health and the Venereal Disease Section of the Connecticut State Department of Health in resolving diagnostic problems arising from laboratory findings; in prompt reporting of all cases of syphilis and gonorrhea; and in the detection of all contacts.

C. The Committee on Public Health further recommends to the Council that they request the Connecticut State Department of Health to inform physicians of the facilities and services available for the accomplishment of these efforts.

4. To suggest that the Connecticut State Department of Health prepare an article for publication in the state journal recommending the most practical methods of administering poliomyelitis vaccine (Sabin) with particular emphasis on the fact that Types II and III can be administered separately but simultaneously and that Types I, II, and III should not be mixed for the initial dose.

On September 15th the Surgeon General's Advisory Committee on Poliomyelitis met because 11 cases of poliomyelitis had occurred in adults who had received the Type III vaccine. This Committee recommended that the use of Type III vaccine in mass programs be limited to pre-school and school children. Plans for mass programs using Type I and Type II vaccines in all age groups should be continued. Furthermore, Type III vaccine is still indicated for use among adults at high risk groups which include tourists to hyperendemic areas and persons residing in epidemic areas.

Stanley H. Osborn, m.d., *Chairman*
Committee on Public Health.

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CONNECTICUT STATE MEDICAL SOCIETY

Supplement to
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March, 1962
Volume 26, Number 3

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CHARTER

(Reprinted March 1962)

The Connecticut State Medical Society was incorporated and chartered by the Connecticut General Assembly in 1792. This is believed to be the earliest private charter granted by the State of Connecticut. The Society has no constitution, the articles of incorporation serve that purpose and cannot be amended without legislative action. The Bylaws implement the Charter and it is under them that affairs of the Society are carried on. The Bylaws can be amended at any meeting of the House of Delegates after proper notice and they are often revised to keep pace with the progress and changing responsibilities of the Society. The Bylaws now published include all amendments to date. The first meeting of the Society was held in Middletown on October 9, 1792.

CHARTER

Be it enacted by the Senate and House of Representatives in General Assembly convened:

Section 1. The charter of The Connecticut Medical Society, approved June 5, 1834, is amended to read as follows: All persons who are, at the time of the passage of this act, members of The Connecticut Medical Society and all physicians and surgeons who shall hereafter be associated with them in pursuance of the provisions of this act shall be and remain a body politic and corporate by the name of The Connecticut State Medical Society; and by that name they and their successors shall and may have perpetual succession; shall be capable of suing and being sued, pleading and being impleaded, in all suits of whatever name and nature; may have a common seal and may alter the same at pleasure and may also purchase, receive, hold and convey any estate, real and personal.

Section 2. The superintendence and management of the corporation shall be vested in a board to be known as "The House of Delegates of The Connecticut State Medical Society," which board shall have power to establish officers in said corporation and prescribe the duties of the several officers and of the members of said corporation and may fix their compensation; to establish the conditions of admission to and dismission and expulsion from said society; to lay a tax, from time to time, upon the members and to collect the same; to hold and dispose of all monies and other property belonging to the corporation in such manner as it may deem advisable to promote the objects and interests of the society and in general to make such bylaws and regulations for the due government of the Society, not repugnant to the statutes of the United States or of this state, as may be deemed necessary.

Section 3. The House of Delegates of the Connecticut State Medical Society shall be composed of, (1) the President, the President-Elect, Treasurer and Secretary of the Society, (2) delegates to be elected annually as hereinafter provided, by the several county medical associations in this State which heretofore have been and are affiliated with the Connecticut State Medical Society and (3) the members of the Council of the Society.

Section 4. An annual meeting of the corporation, for the election of officers and such other business as may, from time to time, arise, shall be held upon such day in each year as The House of Delegates shall, from time to time, prescribe. Notice of such annual meeting date shall be sent to every affiliated county medical association at least sixty days before each annual meeting date so prescribed.

Section 5. At a meeting to be held at least twenty days in advance of the annual meeting of the corporation in each year, every affiliated county association shall elect a delegate or delegates to represent it in The House of Delegates of this Society in the proportion of one delegate to each thirty-five members, or any part of that number, and the secretary of such affiliated county association shall send a list of such delegates to the Secretary of this Corporation at least twenty days before the date of such annual meeting.

Section 6. There shall be in The House of Delegates, one Councilor from each affiliated county medical association. The Councilors holding office at the time of the passage of this act shall serve out the terms of office for which they were elected. At their annual meeting to be held in 1931, the affiliated county medical associations for the counties of Hartford, New London, Windham, and Middlesex shall each elect one Councilor who shall serve for two years, and at their annual meeting in 1932 the affiliated county medical associations for New Haven, Fairfield, Litchfield, and Tolland counties shall each elect one Councilor, who shall serve for two years. Thereafter each county, in groups as above mentioned, shall, biennially, elect a Councilor to fill said office for a term of two years. Any vacancy in said office may be filled by the county association of the county in which the vacancy occurs, by election to fill the unexpired portion of the term.

Section 7. The secretary of each affiliated county medical association in this state, shall, within ten days following any meeting of such association at which new members are elected, file with the Secretary of the Society a list of all members of such association who are at the time in good and regular standing and thereupon all such persons shall become members of The Connecticut State Medical Society without further action.

BYLAWS

(Approved at the Semi-Annual Meeting of the
House of Delegates, December 7, 1961)

Effective May 2, 1962 at 8:00 A.M.

ARTICLE I — TITLE AND DEFINITION

The name of this corporation is The Connecticut State Medical Society, Incorporated, hereinafter referred to as "The Society". It is a federacy of its component associations.

ARTICLE II — PURPOSES

Section 1. Purposes

The purposes of The Society shall be to federate and bring into one organization the medical profession of the State of Connecticut; to unite with similar societies in other states to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standards of medical education; to promote friendly intercourse among physicians; and to enlighten and direct public opinion so that the profession shall become increasingly useful to the public in the prevention and care of disease and in prolonging and adding comfort to life.

Section 2. Non-profit Organization

The Society is not organized, and shall never be maintained and conducted for the pecuniary profit of its members, officers, or employees but shall be, and remain, a strictly scientific and educational corporation, and no member, officer or employee of The Society shall at any time receive or be entitled to receive any pecuniary profit from the operation of The Society except a reasonable compensation for services actually rendered.

Section 3. Ethics

The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

ARTICLE III — COMPONENT ASSOCIATIONS

Section 1. Component Associations

The county medical associations in the following counties shall be the component associations of The Society: Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, Windham.

ARTICLE IV — MEMBERSHIP

Section 1. Active Members

Active Membership shall be limited to those members of component associations who are certified to the General Manager of The Society as entitled to exercise all rights of membership in their component associations including the rights to vote and hold office. A physician eligible for Active Membership in The Society becomes an Active Member of The Society on receipt by the General Manager of The Society of dues prescribed by The Society unless he is exempted from payment of dues as provided in Article XII. Active Members ceasing to be in good standing or ceasing to be members of their component associations shall ipso facto have the same status in The Society. Any Active Member expelled from his component association or suspended from its rights and privileges shall ipso facto have the same status in The Society but his right of appeal to The Society shall not be impaired.

Section 2. Associate Members

Physicians and others interested in the science of medicine and public health who are not licensed to practice medicine in the State of Connecticut, may be elected as Associate Members in The Society by majority vote of the House of Delegates at any regular or special meeting. Candidates for Associate Membership shall be required to file with the Council a formal application for membership which shall be passed upon by the Council with recommendations to the House of Delegates. Associate Members shall enjoy all of the rights and privileges of The Society except that they may not vote or hold elective office; they may be appointed to serve upon committees and present papers before The Society or any of its scientific sections.

Section 3. Honorary Members

Eminent physicians may be elected Honorary Members by majority vote of the House of Delegates in accordance with Article VII, Section 1. Honorary members shall not pay dues to The Society or vote or hold office.

Section 4. Life Members

Any member of The Society who has been an Active Member of The Society or of the American Medical Association or of constituent associations of The American Medical Association for thirty-five consecutive years or who has reached his sixty-fifth birthday anniversary and has been an Active Member of The Society or of the American Medical Association for fifteen or more years immediately preceding said anniversary or any Active Member of The Society who becomes totally and permanently disabled shall be eligible for Life Membership. A physician eligible for Life Membership may apply for such membership to the General Manager of The Society and shall become a Life Member on approval by the Council of such application. Life Members shall not be subject to dues or assessments but shall be accorded all the rights and privileges of active membership in The Society including the rights to vote and hold office.

Section 5. Student Members

Any person whose legal or family residence is in the State of Connecticut who is a regularly enrolled student and a candidate for the degree of Doctor of Medicine in an acceptable medical school, as provided in Section 20-11 (1959) of the General Statutes of Connecticut, or any person who is a student in an acceptable medical school located in the State of Connecticut may become a Student Member of The Society. Also, physicians not licensed to practice medicine in Connecticut who are serving as interns or residents in hospitals in Connecticut, for the purpose of extending their education and not primarily for remuneration, may become Student Members of The Society. Such membership shall be obtained by applying to the Council of The Society on a form provided for that purpose and election by vote of a majority of the Council. Student Members shall enjoy all of the rights and privileges of membership in The Society except that they shall not be eligible to vote or hold office. Student Members shall pay no dues.

Section 6. Limitation To One Membership

A member shall hold only one type of membership in The Society at any one time.

ARTICLE V — HOUSE OF DELEGATES

Section 1. Powers And Duties

The superintendence and management of The Society is vested in the House of Delegates. The House of Delegates has the powers provided by the Charter of The Connecticut State Medical Society, as amended, which include the power to make such bylaws and regulations for the due government of The Society as may be deemed necessary. The House of Delegates is the legislative body of the Association. The House elects the general officers and certain boards and committees to conduct some of The Society's affairs but delegates to the Council all powers necessary to act as the executive and administrative body of The Society while the House of Delegates is not in session. Boards and committees elected by the House of Delegates shall be supervised by the Council between meetings of the House and shall make written reports through the Council to the House. The House of Delegates may provide for a division of the Scientific Assembly of The Society into sections for the presentation and discussion of subjects pertaining to the science and art of medicine, may make rules and regulations for the conduct of such sections, may create new scientific sections and may discontinue any existing scientific section.

Section 2. Composition

The House of Delegates shall be composed of: (a) delegates elected by the component associations according to the apportionment provided in Section 4 of Article V of these Bylaws; (b) those members of the Council who are eligible to vote in the Council.

Section 3. Eligibility

In order to be eligible for membership in the House of Delegates, a physician must have been an Active Member or Life Member of The Society for at least the two years immediately preceding the session of the House in which he is to serve.

Section 4. Apportionment

The number of delegates from the component associations shall be proportional to the number of Active Members of the Connecticut State Medical Society in the respective county associations. Each component association shall be entitled to send from its membership to the House of Delegates each year one delegate for every thirty-five, or fraction thereof, Active Members and Life Members of the Connecticut State Medical Society as recorded in the office of the General Manager of The Society on December 31 of the immediately preceding year.

Section 5. Registration

Par. 1. Certification. Before every session of the House of Delegates, each component association shall deposit with the Secretary of the State Society a certificate or list signed by the president or secretary of the component association or the General Manager of the Society, listing members entitled to be seated in the House of Delegates on the basis of regular election, appointment or ex-officio status.

Par. 2. Registration. Before being seated at any annual, semi-annual, or special meeting of the House of Delegates, each member shall register with the Secretary of the Connecticut State Medical Society. The Secretary shall keep a roster, and shall be responsible to the Speaker of the House for the proper qualifications of the members seated.

All cases, wherein doubt may exist that a member is properly qualified to sit in the House of Delegates, shall be referred by the Secretary to a Reference Committee on Credentials as appointed by the Speaker of the House. At the beginning of each session of the House of Delegates, immediately after Roll-Call, the Chairman of the Committee on Credentials shall report to the House. Any member of the Society who is aggrieved by a decision of the Committee on Credentials may at this time appeal to the House, and may be qualified to sit by a vote of the majority present and voting.

Par. 3. Vacancies. When an elected delegate from a component association and his elected alternate are unable to attend a specified session, the appropriate authorities of the component association concerned may appoint, in accordance with the bylaws of that component association, a substitute delegate and a substitute alternate. A substitute delegate or his alternate may be seated by the Reference Committee on Credentials provided he has been an Active Member of the Connecticut State Medical Society for at least two years immediately preceding the session of the House in which he is to serve and provided he is properly identified as the substitute delegate or substitute alternate selected by the appropriate authorities of the component association concerned.

Section 6. Status After Seating

A delegate whose credentials have been accepted by the Reference Committee on Credentials and whose name has been placed on the roll of the House shall remain a delegate until the final adjournment of that meeting of the House of Delegates. If a delegate, once seated, is unable to be present on account of sickness or any other emergency his place may be taken by an alternate.

Section 7. Regular Meetings

The House of Delegates shall meet annually during the week of the Scientific Assembly of The Society at the time and place designated by the Council. The House of Delegates shall hold one semi-annual meeting at the time and place designated by the Council. The order of business at each annual and each semi-annual meeting shall be that arranged by the Speaker of the House of Delegates in accordance with Article V, Section 12. Business that may properly come before an annual meeting may be considered at a semi-annual meeting subject to the provisions of the Bylaws.

Section 8. Special Meetings

Special meetings of the House of Delegates shall be called by the Speaker of the House of Delegates on written request of twenty-five or more delegates elected as delegates by and from component associations, or on written request of a majority of the members of the Council eligible to vote in the Council. When a special meeting is thus called, the General Manager shall mail a notice to the last known address of each member of the House of Delegates, at least ten days before the special meeting is to be held. The notice shall specify the time and place of meeting and the purpose for which the meeting is called. No business shall be considered at a special meeting except that for which it was called.

Section 9. Open And Closed Sessions

Every regular or special meeting of the House of Delegates shall be an open session to which any person may be admitted as an observer, unless by majority vote of the seated delegates a portion of the meeting is moved into a closed session. A closed session shall be restricted to members of The Society, to members of the staff of The Society or the staff of a component association, to official delegates from other medical societies, and to such other persons as may be admitted by majority vote of the House.

Section 10. Executive Session

By two-thirds vote of the seated delegates, a portion of any meeting may be moved into executive session. An executive session shall be limited to members of the House of Delegates as defined in Sections 2, 5 and 6 of Article V of the Bylaws and to such employees of The Society as the Speaker deems necessary for the functioning of the House during the executive session.

Section 11. Quorum

A quorum at any meeting of the House of Delegates shall consist of a majority of the sum of the number of delegates to which all component associations are entitled in accordance with Section 4 of Article V of the Bylaws plus the number of members of the Council eligible to vote in the Council.

Section 12. Procedure

Par. 1. Order of Business. The following shall be the general order of business at all sessions of the House of Delegates:

1. Called to order by the Speaker.
2. Roll-Call.
3. Report of Credential Committee.
4. Speaker's remarks and appointment of Reference Committees.
5. Reading and adoption of the minutes of the previous meeting.
6. Introduction of guests.
7. Reports of officers.
8. Reports of committees.
9. Presentation of awards.
10. Old business.
11. New business, and reports of Reference Committees.
12. Adjournment.

At any meeting, the House, by majority vote, may change the order of business.

Par. 2. Privilege of the Floor. The House of Delegates, in any session, by a two-thirds vote may extend an invitation to address the House to any person, who in its judgment, might assist in its deliberation.

Par. 3. Resolutions. All resolutions to be considered as regular business at any regular meeting of the House of Delegates must be in the hands of the Speaker not later than seventy-two hours before the opening of that meeting. All resolutions and recommendations published in the official agenda distributed to the members of the House prior to the meeting at which action is to be taken shall be considered as regular business. Resolutions presented later than seventy-two hours before the opening of a meeting will be referred for consideration as regular business by the House only when they are presented by the Council or accepted for consideration by majority vote of the delegates present. Any resolution which does not qualify in accordance with the aforesaid provisions for consideration as regular business may be accepted for action by a majority vote of the delegates present and, if so accepted, shall be referred at once by the Speaker to a reference committee. Any such reference committee shall consider resolutions referred to it and shall report, with recommendations, to the House before adjournment of the meeting.

Par. 4. Reference Committees. The Speaker of the House of Delegates shall appoint from the members of the House such reference committees as the House may approve. Each committee shall consist of five members. The chairman shall be appointed by the Speaker. These committees shall serve only during the meeting at which they are appointed.

Section 13. Referendum

The House of Delegates at any meeting may, by a two-thirds vote of the members seated in the House, submit any question pending before it to a general referendum of Active Members of The Society who may vote by mail or in person and, if the members voting shall comprise a majority of the Active Members of The Society, a majority of such vote shall determine the question and the result shall be binding on the House of Delegates.

ARTICLE VI — GENERAL OFFICERS

Section 1. Designations

The general officers of The Society shall be a President, a President-Elect, a Vice-President, a Secretary, a Treasurer, a Speaker of the House of Delegates, a Vice-Speaker of the House of Delegates and the Delegates to the American Medical Association.

Section 2. Qualifications

A general officer must have been, for at least two years immediately preceding his election, an Active Member or Life Member of The Society.

Section 3. Term Of President-Elect

The President-Elect shall be elected annually by ballot by the House of Delegates. He shall serve as President-Elect until the annual meeting of the House of Delegates next ensuing after his election and shall become President upon his installation in the course of that annual meeting, serving thereafter as President until the installation of his successor.

Section 4. Terms Of Other General Officers

Par. 1. Election. The Vice-President, the Secretary, Treasurer, and the Speaker and Vice-Speaker of the House of Delegates shall be elected annually by ballot by the House of Delegates.

each to take office immediately after the adjournment of the annual meeting at which he is elected and each to serve for one year or until his successor is installed. The House of Delegates shall elect by ballot delegates and alternate delegates from The Society to the House of Delegates of the American Medical Association in accordance with the constitution and bylaws of that body. These delegates and alternates shall take office on the first of January following their election and shall serve terms of two years.

PAR. 2. VACANCIES. In the event of a vacancy in the office of Secretary, Treasurer or Vice-Speaker or Delegate or Alternate Delegate to the American Medical Association, the Council shall fill the vacancy by appointment of an Active Member of the Society to serve until the next regular meeting of the House of Delegates at which a successor shall be elected.

Section 5. Successor To The President

If the President dies, resigns or is removed from office, the President-Elect shall immediately become President and shall serve for the remainder of the term of his immediate predecessor. If said remainder of the term served is less than six months, he shall also serve as President until the second annual meeting of the House of Delegates following his election as President-Elect. If a President-Elect succeeds to the Presidency six months or more before the following annual meeting of the House of Delegates, he shall serve thereafter as President until the installation of his successor.

Section 6. Successor To The President-Elect

If a vacancy occurs in the office of President-Elect less than six months before the following annual meeting of the House of Delegates, the Vice-President shall immediately become President-Elect and shall serve as President-Elect until the second annual meeting of the House of Delegates following his election as Vice-President at which meeting he shall become President upon his installation in the course of that meeting, serving thereafter as President until the installation of his successor. If a vacancy occurs in the office of President-Elect six months or more before the following annual meeting of the House of Delegates, the Vice-President shall immediately become President-Elect and shall serve as President-Elect until the next ensuing annual meeting of the House of Delegates at which meeting he shall become President upon his installation in the course of that annual meeting, serving thereafter as President until the installation of his successor.

Section 7. Acting President

If a vacancy occurs in the office of President and there are simultaneous vacancies in the successor offices defined in Article VI, Sections 5 and 6, the Secretary shall assume the duties of the office of President; the Speaker of the House of Delegates shall forthwith call a special meeting of the House of Delegates for the purpose of electing a President, a President-Elect and a Vice-President for the remainder of the terms; and the Secretary shall serve as Acting President until said three officers elected at that special meeting are installed in the course of that special meeting.

Section 8. Duties Of The President

The President shall preside at all meetings of the Society. He shall be an ex-officio member of all committees. He shall appoint all committees not otherwise provided for in these Bylaws, subject to confirmation by the Council. He shall visit the component medical associations. He shall perform such other duties as the House of Delegates or the Council shall direct.

Section 9. Duties Of The President-Elect

The President-Elect shall aid and assist the President and shall officiate for the President during his absence or at his request.

Section 10. Duties Of The Vice-President

The Vice-President shall aid and assist the President-Elect and shall officiate for the President during the absence of both the President and President-Elect or at their request.

Section 11. Duties Of The Secretary

The Secretary, in addition to the rights and duties ordinarily devolving on the secretary of a corporation by law or custom and those granted or imposed in other provisions of the Charter and these Bylaws, shall perform such duties as may be specified by the House of Delegates or the Council. The Secretary shall make a report to the Annual Meeting of the House of Delegates.

Section 12. Duties Of The Treasurer

The Treasurer, in addition to the rights and duties ordinarily devolving on the treasurer of a corporation by law or custom, and those granted or imposed in other provisions of the Charter and these Bylaws, shall supervise the receipt of all funds due the Society, and bequests and donations made to the Society, and shall allocate funds as directed by the Council. The Treasurer shall give bond in a sum and manner of bonding prescribed by the Council. The Treasurer shall make a report to the Annual Meeting of the House of Delegates.

Section 13. Duties Of The Speaker

The Speaker of the House of Delegates shall preside at all regular and special meetings of the House of Delegates and shall perform such duties as custom and parliamentary usage require. He may address the House of Delegates at the opening of any meeting of the House of Delegates, limiting his address to matters of conduct and procedure in the House of Delegates. He shall have the right to vote in the House of Delegates only in case of a tie. He shall appoint a Committee on Credentials of five members prior to each meeting of the House of Delegates, and name a chairman thereof.

Section 14. Duties Of The Vice-Speaker

The Vice-Speaker shall aid and assist the Speaker and shall officiate for the Speaker during his absence or at his request. In case of death, resignation or removal of the Speaker, the Vice-Speaker shall immediately become Speaker and shall serve for the remainder of the term of his immediate predecessor. Except when he is officiating for the Speaker, the Vice-Speaker shall have full voting rights in the House of Delegates.

Section 15. Duties Of The Delegates To AMA

The elected Delegates, or in their absence, the Alternate Delegates, shall represent the Society in the American Medical Association in accordance with the constitution and by-laws of that association, and shall report to the Council and the House of Delegates of The Society.

ARTICLE VII — THE COUNCIL

Section 1. Powers And Duties

Par. 1. General. The Council shall be the executive and administrative body of The Society while the House of Delegates is not in session and shall control all arrangements for all meetings of The Society.

Par. 2. Chairman. The Council shall annually elect from its membership a chairman who shall preside at all meetings of the Council. In his absence, the President shall preside.

Par. 3. Finances. The Council shall be the finance committee of The Society and shall superintend and direct all financial transactions of The Society. The Council shall prepare and submit annually to the House of Delegates a budget for the operation of The Society for the ensuing year.

Par. 4. Censorship. The Council shall be the Board of Censors of The Society. It shall consider all questions involving the rights and standing of members in relation to other members, to the component associations, or to this Society. All questions of an ethical nature brought before the House of Delegates or a general meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members of component associations on which an appeal is taken, and its decision in all such matters shall be final.

The Council shall serve as a board of review for cases of claimed malpractice referred to it by the Committee on Medical Ethics and Deportment of any component county association.

Par. 5. Honorary Members. The Council may present annually to the House of Delegates the names of not more than three eminent physicians as candidates for Honorary Membership in The Society.

Par. 6. Honorary Degrees. The Council may recommend to the House of Delegates the bestowal of an Honorary Degree in medicine upon any person not a physician, distinguished in the sciences of medicine or for contribution to human welfare.

Par. 7. Nominations. The Council shall be the Nominating Committee of The Society. The President shall be the chairman of the Nominating Committee. The Nominating Committee shall report its nominations to the first session of each annual meeting of the House of Delegates; following this report nominations may be made from the floor.

Par. 8. Annual Report. The Council shall make an annual report to the House of Delegates.

Par. 9. Student Members. The Council shall elect Student Members of The Society.

Par. 10. Employees. The Council shall have power and authority, subject to the limitation imposed by paragraph one of Section 3 of Article VII of these Bylaws, to employ, discharge, arrange duties, and fix compensation of and for any employee whom it may find necessary for conducting the affairs of the Society.

Par. 11. Counsel. The Council shall employ legal counsel and/or a legislative agent subject to the directives of the House of Delegates.

Par. 12. Special Appointments. The Council annually shall appoint fourteen members of the Society to serve on a Panel for Physician-Hospital Mediation (House of Delegates, December 6, 1960). Appointments shall be made as follows: One member each from the component associations for the counties of Litchfield, Middlesex, New London, Tolland and Windham, and three members each from the component association for the counties of Fairfield, Hartford and New Haven. From this Panel, the President of the Society, on request, shall appoint a sub-panel of three members who have no connection with the case to be mediated, either by reason of location or type of practice, hospital affiliation, personal association or other pertinent consideration, which sub-panel shall review and assist in resolving disagreements between members of the Society and hospital administrations wherein disagreement persists after the procedures recommended by the Joint Commission on the Accreditation of Hospitals or their equivalent have been carried out. Each such panel, when appointed, shall have access to all necessary and desirable legal counsel upon authorization by the Council.

Section 2. Composition

The Council shall consist of the General Officers, any Active Member of The Society who is serving as a general officer of the American Medical Association as defined in Section 1 of Article VII of the Constitution of that Association during his tenure as such general officer, one Councilor and one Associate Councilor from each component association, and one additional Associate Councilor from each component association having over 750 members, and one Councilor-at-Large. The General Manager and Editor of Connecticut Medicine may participate ex-officio, and without the right to vote, in meetings of the Council.

Section 3. General Manager

Par. 1. Appointment. The Council shall appoint a General Manager, subject to the approval of the House of Delegates.

Par. 2. Duties. The General Manager shall exercise all such powers, shall carry out all such duties, and shall observe all such directions and restrictions as the Council may from time to time impose upon him, but in default thereof, the General Manager shall manage and supervise the ordinary affairs and business of The Society, and do any and all acts and things necessary or conducive to such management. The duties of the General Manager shall include but not thereby be limited to the following:

a) To manage The Society's office, grounds, equipment and other property.

b) To employ such assistance as may be approved by the Council and to supervise all employees of The Society.

c) To maintain membership and biographical records.

d) To collect The Society dues except from the members of any component association which collects The Society dues.

e) To collect American Medical Association dues from all members of The Society who are members of the American Medical Association.

f) To make necessary business arrangements, including those for commercial exhibits.

g) To record attendance and proceedings, and maintain records of all meetings of the House of Delegates, the Clinical Congress, the Council, and committees of the Society.

h) To maintain The Society's financial records in cooperation with the Treasurer, The Society's bankers and auditors.

i) To pay authorized expenditures from funds allocated by the Treasurer.

j) To conduct the official correspondence of The Society including notifying members of meetings, officers of their election and committees of their appointment and duties.

k) Provide guidance services to physicians seeking professional placement in Connecticut.

l) To maintain working contact and cooperation with the component associations of The Society and with the Woman's Auxiliary.

m) To maintain active liaison with State government agencies.

n) To maintain active liaison with the headquarters of the American Medical Association.

o) To maintain active liaison with voluntary health agencies serving Connecticut.

p) To implement and coordinate the activities of The Society with respect to legislative programs.

q) To implement and coordinate The Society's public relations and publicity programs.

r) To aid and assist the officers, boards and committees of The Society in the performance of their powers and duties.

Section 4. Terms Of Council Membership

Par. 1. General Officers. The terms of membership in the Council of the general officers of The Society, and any general officer of the American Medical Association shall be the terms of their offices as defined in these Bylaws.

Par. 2. Councilors and Associate Councilors. Councilors and Associate Councilors, who shall serve for two years, shall be elected at the annual meeting of each of the County Associations in Hartford, New London, Windham, and Middlesex Counties in the odd-numbered years, and Councilors and Associate Councilors who shall serve for two years shall be elected at the annual meeting of each of the County Associations in New Haven, Fairfield, Litchfield, and Tolland Counties in the even numbered years.

These Councilors and Associate Councilors shall assume office immediately following the Annual Meeting of the House of Delegates.

Par. 3. Councilor-at-Large. The Council may, in its discretion, recommend to the House of Delegates at any annual meeting, the election of a Councilor-at-Large, who shall serve for a term of one year.

Par. 4. Limitations of Tenure. No Councilor or Associate Councilor elected by a component association shall serve more than three successive terms of two years each in his respective office, but after a lapse of one term of two years such Councilor or Associate Councilor shall be eligible for re-election.

Par. 5. Vacancies. Any vacancy in the office of Councilor or Associate Councilor from a component association shall be filled by that component association. Any vacancy in the office of Councilor-at-large may be filled by the Council by appointment of an eligible member of The Society to fill the unexpired portion of the term.

Section 5. Meetings

Par. 1. Regular and Others. The Council shall meet at least every two months throughout the year, except during the months of July, August, and September, and at such other times as a meeting may be called by the Chairman of the Council or upon petition of three members of the Council. The President shall call the initial meeting of the Council as soon as possible after the Annual Meeting of the House of Delegates, and shall preside at this meeting until the Council elects its chairman.

Par. 2. Quorum. A quorum shall consist of more than 50% of the voting members of the Council, with representation from at least five Counties.

Section 6. Power To Fill Vacancies

The Council shall have power to fill any vacancy which may occur in any elective office, board, or committee, for which the power to fill such vacancy is not otherwise provided, until the next regular meeting of the House of Delegates.

Section 7. Policy Initiation Or Commitment

No officer or board or committee or section or employee shall inaugurate or initiate or commit The Society to any policy unless the same has been expressly approved by the House of Delegates or the Council.

ARTICLE VIII — SCIENTIFIC ASSEMBLY

Section 1. Definition

The Scientific Assembly of The Society is the convocation of its members for the presentation and discussion of subjects pertaining to the science and art of medicine.

Section 2. Meetings

Par. 1. General. General meetings of the Scientific Assembly shall be held annually. General meetings of the Scientific Assembly shall be arranged by the Council which shall select the persons to preside.

Par. 2. Sections. Sections of the Scientific Assembly may be created or existing sections discontinued in accordance with Section 1 of Article V of these Bylaws. The officers of each section shall be a chairman, a secretary and such other officers as the section may deem advisable, each to be elected by the section during the course of the annual meeting of the Scientific Assembly to serve for one year. Each section shall meet during the course of the annual meeting of the Scientific Assembly and at such other times as the section may deem advisable. The officers of each section shall arrange the program of the meetings of the section in accordance with the rules and regulations of the House of Delegates and the Council. Only Active Members and Life Members of The Society shall vote or hold office in a section of the Scientific Assembly.

Section 3. Registrants

Par. 1. General Meetings. The following shall be permitted to register at any general meeting of the Scientific Assembly subject to rules and regulations of the House of Delegates and the Council:

A) Members of The Society—Active, Associate, Honorary, Life and Student Members.

B) Delegates to The Society from constituent associations of the American Medical Association.

C) Guests invited by the House of Delegates, the Council, The General Manager, general officers or officers of a section.

D) Residents and interns who are certified for registration by the General Manager.

E) Medical students of approved medical schools who are certified for registration by the General Manager.

Par. 2. Section Meetings. Any section may exclude from its meetings all but duly registered members of the section when the section is electing officers or conducting business of the section.

Section 4. Quorum

A quorum at any general meeting or section meeting of the Scientific Assembly shall be those present at a duly called meeting or, in the case of a section, the number or proportion designated by the section.

ARTICLE IX — "CONNECTICUT MEDICINE"

Section 1. Election Of Editor

The Council shall elect an Editor of "Connecticut Medicine" to serve until his successor takes office after election by the Council. The Editor shall serve ex-officio as a member of the Council without the right to vote.

Section 2. Powers And Duties Of Editor

The Editor of "Connecticut Medicine" shall exercise all such powers, shall carry out all such duties. and shall observe all such directions and restrictions as the Council may from time to time impose upon him, but in default thereof, the Editor of "Connecticut Medicine" shall manage and supervise the publication of "Connecticut Medicine" with full responsibility for editorial content, advertising sales, and circulation, as well as approval of all printing and paper contracts for the publication. He shall coordinate his activities with those of the General Manager and the latter's office and to that end, he may utilize employees, equipment and facilities of the Society which are under the General Manager's supervision and which are assigned to his service by the General Manager.

Section 3. Finance

The General Manager periodically shall receive from the Treasurer prorated portions of the fund allocated to the Editor's office and from such funds the General Manager shall make direct payment of all expenditures necessary for the publication of "Connecticut Medicine". The report of such expenditures shall be included in the report of the Treasurer to the House of Delegates at its annual meeting.

ARTICLE X — COMMITTEES OF THE COUNCIL

Section 1. Council Subcommittees

The Council may appoint from time to time ad hoc subcommittees from the membership of the Council to assist in expediting the business of the Council. Such subcommittees shall be discharged by the Council at will. All such subcommittees of the Council shall be discharged automatically upon the adjournment of the annual meeting of the House of Delegates following their creation.

Section 2. Standing Committees Of The Council

Par. 1. Outline. The standing committees of the Council shall be as follows:

A Committee on Arrangements

A Committee on Building Management

A Committee on Employee Pensions and Benefits

A Committee on Investment of Funds

A Committee on Preliminary Study of Censorship Questions

A Committee on Preliminary Study of Nominations

A Liaison Committee with CMS.

Par. 2. Membership. The members of all standing committees of the Council shall be discharged automatically upon the adjournment of the annual meeting of the House of Delegates following their election.

Par. 3. Committee on Arrangements. The component association of the county in which the annual Scientific Assembly is to be held shall nominate to the Council a Committee on Arrangements. The Council shall elect the committee and the chairman thereof. The Committee on Arrangements shall provide suitable accommodations for general meetings, section meetings and exhibits of the Scientific Assembly. Its chairman shall report an outline of the arrangements to the General Manager for publication in the program.

Par. 4. Committee on Building Management. The Council shall elect a Committee on Building Management which shall make such recommendations to the Council as it deems advisable with respect to the management of The Society's building, offices, grounds, equipment and other property exclusive of funds.

Par. 5. Committee on Employee Pensions and Benefits. The Council shall elect a Committee on Employee Pensions and Benefits which shall make such recommendations to the Council as it deems advisable with respect to salaries, pensions and other insurance arrangements, vacations, overtime, bonuses, working conditions, and similar matters affecting employees of The Society to the end that employee morale as related to such matters shall be maintained at as high a level as feasible.

Par. 6. Committee on Investment of Funds. The Council shall elect a Committee on Investment of Funds which shall make such recommendations to the Council as it deems advisable with respect to the investment of The Society's funds. The Treasurer shall serve ex-officio as chairman of the committee.

Par. 7. Committee on Preliminary Study of Censorship Questions. When the Council receives a question involving the rights and standings of members, in relation to other members or to the component associations or to The Society, or when a question of an ethical nature is referred to the Council from the House of Delegates, or when an appeal is taken to the Council on a question of discipline affecting the conduct of members of component associations, or when a case of claimed malpractice is referred to the Council by the committee on medical ethics and deportment of a component association, the Council shall elect a Committee on Preliminary Study of Censorship Questions which shall study and review such question or appeal or claimed malpractice case and shall report its findings and recommendations to the Council. Once such committee is elected, it shall serve as a standing committee of the Council.

PAR. 8. COMMITTEE ON PRELIMINARY STUDY OF NOMINATIONS. The President of The Society and the Councilor from each component association shall be the Committee on Preliminary Study of Nominations. The President shall be the chairman of the committee; in his absence, the President-Elect shall serve as chairman pro tempore and, in the President-Elect's absence, the Vice-President shall serve as chairman pro tempore. In the absence of the Councilor from any component association, an Associate Councilor from that association may serve in his place. The committee shall study the offices and committee memberships elective by the House of Delegates and shall report to the Council its recommendations as to the nominee for each such office or committee. Following this report, the Council shall name a full slate of nominees and shall report its nominations to the first session of each annual meeting of the House of Delegates.

PAR. 9. LIAISON COMMITTEE WITH CMS. The Council shall name a Liaison Committee with the Board of Directors of the Connecticut Medical Service, Inc., which shall meet in joint conferences with a similar Liaison Committee of the Board of Directors of Connecticut Medical Service, Inc. with the object of promoting cordial and effective liaison between The Society and the Connecticut Medical Service, Inc. Through the medium of such joint conferences, there shall be prior review of any proposed new CMS subscribers' contracts and contracts with CMS participating physicians and prior review of any proposed major changes in the bylaws of Connecticut Medical Service, Inc., to the end that The Society and Connecticut Medical Service, Inc. shall operate, as far as possible, in mutual harmony and agreement.

Section 3. Representatives And Advisors

PAR. 1. OUTLINE. The Council shall elect the following committees of representatives or advisors.

Advisory Committee—Cerebral Palsy Association
Advisory Committee on Medicare Plan and Federal Employee Health Benefits Program
Advisory Committee to the State Commissioners of Welfare, Finance and Control
Advisory Committee to Woman's Auxiliary
Conference Committee with Connecticut Bar Association
Conference Committee with Connecticut State Dental Association
Conference Committee with Connecticut Pharmaceutical Association
Conference Committee for the Improvement of the Care of the Patient
Delegates to Connecticut Advisory Council on School Health
Delegates to the Council of New England State Medical Societies
Delegates to Connecticut Nutrition Council
Delegates to State Medical Societies and Special Societies
Representative—Connecticut Advisory Committee on Foods and Drugs
Representatives to Connecticut Health League

PAR. 2. ADVISORY COMMITTEE—CEREBRAL PALSY ASSOCIATION. The Council shall elect annually an Advisory Committee to the Cerebral Palsy Association to consist of not more than five members and appoint the chairman thereof. The purpose of this committee is to serve in an advisory capacity to the United Cerebral Palsy Association of Connecticut in matters relating to medical affairs.

PAR. 3. ADVISORY COMMITTEE ON MEDICARE PLAN AND FEDERAL EMPLOYEE HEALTH BENEFITS PROGRAM. The Council shall elect annually an Advisory Committee on Medicare Plan and Federal Employee Health Benefits Program and appoint the chairman thereof. The membership on this committee shall be representative of all of the county associations and the major medical specialties. The purposes of this committee are to cooperate with the Office for Dependents' Medical Care of the Department of Defense and Connecticut Medical Service in the operation of the Dependents' Medical Care Act in Connecticut; supervise the medical professional phases of the Plan in Connecticut; determine appropriate fees for medical services not included in the Connecticut Schedule of Allowances; determine matters of policy within the State jurisdiction; and direct the Plan Coordinator in Connecticut. This committee shall also adjudicate individual allowances for procedures whose fees are determined on an individual consideration basis under the Federal Employees Health Benefits Program.

PAR. 4. ADVISORY COMMITTEE TO THE STATE COMMISSIONERS OF WELFARE, FINANCE AND CONTROL. The Council shall elect annually an Advisory Committee to the State Commissioners of Welfare, Finance and Control to consist of not less than five members and appoint the chairman thereof. The purposes of this committee shall be to advise and assist the commissioners of welfare, finance and control in all matters concerning the medical care and hospitalization of state beneficiaries and to promote and foster cooperative relations between state employed personnel and all members of the medical profession.

PAR. 5. ADVISORY COMMITTEE TO WOMAN'S AUXILIARY. The Council shall elect annually an Advisory Committee to the Woman's Auxiliary of not less than three members and to appoint the chairman thereof. The purpose of this committee is to serve in an advisory capacity to the Woman's Auxiliary of the State Medical Society in matters of general policy, insofar as they relate to the program of the State Medical Society and, upon request, to confer with the Auxiliary in the development of this program.

PAR. 6. CONFERENCE COMMITTEE WITH CONNECTICUT BAR ASSOCIATION. The Council shall elect annually a Conference Committee with the Connecticut Bar Association of not less than five members and appoint the chairman thereof. The purpose of this committee is to confer from time to time with representatives of the Connecticut Bar Association on matters of mutual interest to the medical and legal professions.

PAR. 7. CONFERENCE COMMITTEE WITH CONNECTICUT STATE DENTAL ASSOCIATION. The Council shall elect annually a Conference Committee with the Connecticut State Dental Association of not less than five members and appoint the chairman thereof. The purpose of this committee is to confer from time to time with representatives of the Connecticut State Dental Association on problems of mutual interest to the two professions and bring them into closer relationship in all fields.

PAR. 8. CONFERENCE COMMITTEE WITH THE CONNECTICUT PHARMACEUTICAL ASSOCIATION. The Council shall elect annually a Conference Committee with the Connecticut Pharmaceutical Association of not less than five members and appoint the chairman thereof. The purpose of this committee shall be to provide a continuing conference group between the Connecticut State Medical Society and the Connecticut Pharmaceutical Association for the study of mutual problems and for the integration of purposes and objectives common to both professions in Connecticut.

PAR. 9. CONFERENCE COMMITTEE FOR THE IMPROVEMENT OF THE CARE OF THE PATIENT. The Council shall elect annually three representatives and appoint the chairman thereof to serve on a joint committee for the improvement of the care of the patient, which consists of representatives from the State Medical Society, State Nurses' Association, Connecticut League for Nursing, Connecticut Public Health Association and the Connecticut Hospital Association. The purpose of this committee is to study problems of mutual interest to the medical, nursing and hospital administrative professions with a view to improving the care of hospital patients.

PAR. 10. DELEGATES TO CONNECTICUT ADVISORY COUNCIL ON SCHOOL HEALTH. The Council shall elect, in the even numbered years, a delegate and alternate delegate, for a term of two years, to represent The Society on the Connecticut Advisory Council on School Health.

PAR. 11. DELEGATES TO THE COUNCIL OF NEW ENGLAND STATE MEDICAL SOCIETIES. The Council shall elect annually three delegates to the Council of New England State Medical Societies and designate the chairman thereof. The duties of these delegates shall be to represent the Connecticut State Medical Society at meetings of the New England Council and shall, upon direction of the Council or the House of Delegates, cast one unit vote for The Society on all matters calling for such vote. The chairman is charged with the responsibility of maintaining liaison between the two organizations and with preparing and filing a report of the delegates at each annual meeting of The Society.

PAR. 12. DELEGATES TO CONNECTICUT NUTRITION COUNCIL. The Council shall elect annually two delegates to represent The Society on the Connecticut Nutrition Council.

PAR. 13. DELEGATES TO STATE MEDICAL SOCIETIES AND SPECIAL SOCIETIES. The Council shall elect annually two delegates each to the following state societies: Maine, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island and Vermont. The terms of office of these delegates shall be for one year beginning July 1, all except the delegates to New York, whose terms shall expire at the annual meeting of the Connecticut State Medical Society. The Council shall elect annually one delegate each to the Connecticut Hospital Association, the Connecticut Pharmaceutical Association, the Connecticut State Dental Association, and the Connecticut State Nurses Association. The terms of these delegates shall expire at the annual meeting of The Society.

PAR. 14. REPRESENTATIVE—CONNECTICUT ADVISORY COMMITTEE ON FOOD AND DRUGS. The Council shall elect annually one representative to serve on the Connecticut Advisory Committee on Food and Drugs.

PAR. 15. REPRESENTATIVES TO CONNECTICUT HEALTH LEAGUE. The Council shall elect annually one of three representatives to the Connecticut Health League and appoint the chairman thereof. There shall be three representatives to the Connecticut Health League, each of whom shall serve for three years, and shall be elected in such a manner that the terms of one representative shall expire annually.

ARTICLE XI
DIVISIONAL BOARDS AND COMMITTEES

Section 1. Divisions

In order to strengthen various functions of The Society, to minimize overlapping and duplication of work and to provide clear-cut centers of responsibility, related functions of The Society shall be grouped into divisions as follows:

Education and Hospitals Division
Legislation Division
Medical Economics Division
Publications Division
Public Relations Division
Scientific Activities Division
Socio-Environmental Medicine Division

Section 2. Divisional Boards

Each of the divisions of The Society shall be supervised by a divisional board whose members and chairman shall be elected by the House of Delegates from the active membership of The Society. The membership of each divisional board shall include the chairman of each standing committee of that division and such others as the House of Delegates may deem advisable to elect. Each divisional board shall submit annually before March first a written report to the Council for transmittal to the House of Delegates and shall make such other reports at other times as requested by the House of Delegates or the Council.

Section 3. Divisional Standing Committees

The standing committees of the divisions of The Society shall consist of Active Members and Life Members of The Society and shall be as follows:

(A) Education and Hospitals Division
    Advisory Committee to the State Board of Examiners for Nursing
    Committee on Cooperation with the Yale School of Medicine
    Committee on Health Careers
    Committee on Hospitals
    Committee on Medical Education and Licensure
    Committee on Postgraduate Education
    Committee on Program of the Scientific Assembly

Connecticut Committee on American Medical Education Foundation

(B) Legislation Division
    Committee on State Legislation
    Committee on National Legislation

(C) Medical Economics Division
    Committee on Medical Care of Veterans
    Committee on Medical Economics and Insurance
    Committee on Third Party Payments

(D) Publications Division
    Committee on Publications
    Editorial Committee of "Connecticut Medicine"

(E) Public Relations Division
    Committee on County and Local Public Relations
    Committee on State and National Public Relations

(F) Scientific Activities Division
    Cancer Coordinating Committee
    Committee on Aging
    Committee on Eye Care
    Committee on Maternal Morbidity and Mortality
    Committee on Perinatal Morbidity and Mortality
    Committee on State Blood Bank

(G) Socio-Environmental Medicine Division
    Committee on Accident Prevention
    Committee on Mental Health
    Committee on Occupational Health
    Committee on Public Health
    Committee on Rehabilitation
    Committee on Rural Health

Section 4. Organization And Operation Of Boards And Standing Committees

The chairman of each board and standing committee shall be elected by the House of Delegates. Each board and standing committee shall organize and elect its own vice-chairman, secretary and such other officers as it deems advisable. Each board and standing committee shall have the authority to appoint special subcommittees subject to the approval of the Council for any purpose within the functions of the board or standing committee. Each board or standing committee shall make its own rules to govern its action provided such rules do not conflict with the Charter or these Bylaws nor with rules or resolutions of the House of Delegates or of the Council. The Society headquarters shall be the headquarters of all boards and standing committees. Each divisional standing committee shall submit to its divisional board for transmittal to the Council a budget for the fiscal year. A board or a standing committee shall not expend or contract to expend any money in excess of its appropriation without the consent and approval of the Council. Each divisional standing committee shall submit annually at a time set by its divisional board a written report and shall make such other reports at other times as requested by its divisional board.

Section 5. Duties Of Standing Committees

Par. 1. Advisory Committee to the State Board of Examiners for Nursing. The Council annually shall nominate to the House of Delegates an Advisory Committee to the State Board of Examiners for Nursing to consist of not less than three nor more than five members and shall nominate the chairman thereof. The function of this committee shall be to study the educational, training and legal requirements for practitioners of nursing in the State of Connecticut, to provide information for members of The Society and for the State Board of Examiners for Nursing on these and related matters, and, as occasion arises, to recommend to the Council and the State Board of Examiners for Nursing procedural or statutory changes designed to maintain a high quality of nursing care in Connecticut.

Par. 2. Committee on Cooperation with the Yale School of Medicine. The Council annually shall nominate to the House of Delegates a Committee on Cooperation with the Yale School of Medicine to consist of not less than three nor more than seven members and shall nominate the chairman thereof. The function of the committee shall be to study the educational program of the Yale School of Medicine, to provide information for members of The Society and for the faculty and governing bodies of the Yale School of Medicine on matters related to this subject, and, as occasion arises, to enlist the support of members of The Society in assisting the Yale School of Medicine in its educational program.

Par. 3. Committee on Health Careers. The Council annually shall nominate to the House of Delegates a Committee on Health Careers to consist of not less than eight members and shall nominate the chairman thereof. The function of the committee shall be to endeavor to stimulate and encourage youths of Connecticut to enter into the study of medicine and allied health fields through counseling sessions in conjunction with the Woman's Auxiliary and each component association and through the dissemination of verbal and written information and exhibits to students and teachers in secondary schools. The members of the committee shall be selected to represent every component association of The Society.

Par. 4. Committee on Hospitals. The Council annually shall nominate to the House of Delegates a Committee on Hospitals to consist of not less than six members and shall nominate the chairman thereof. This committee shall pursue a continuing study of the relations of the medical profession to the operation of public and voluntary hospitals in Connecticut, shall confer with the State Department of Health and the Connecticut Hospital Association on this and related matters and, when indicated, shall make recommendations to the Council for transmittal to the House of Delegates, the State Department of Health, or the Connecticut Hospital Association.

Par. 5. Committee on Medical Education and Licensure. The Council annually shall nominate to the House of Delegates an active member of The Society to be proposed to the Governor of the State of Connecticut for appointment as a member of the Connecticut Medical Examining Board for a term of five years. On or about December first of each year, the General Manager of The Society shall prepare for the signature of the President of The Society a statement informing the Governor of The Society's choice of an active member to be appointed as a member of the Connecticut Medical Examining Board and the President shall cause the signed statement to be delivered to the Governor. When a vacancy occurs on the Connecticut Medical Examining Board and when it is not practical for the appointment to be made by the House of Delegates, the President shall propose to the Governor an active member of The Society for appointment.

The Connecticut Medical Examining Board shall constitute The Society's Committee on Medical Education and Licensure and the President of that Board as elected by its members shall be the chairman of the Society's Committee on Medical Education and Licensure. The function of the committee shall be to study the educational and legal requirements for practitioners of medicine in the State of Connecticut, to provide information for the members of The Society on these and related matters, and, when indicated, to recommend to The Society amendments to the statutes designed to maintain a high quality of medical care in Connecticut.

PAR. 6. COMMITTEE ON POSTGRADUATE EDUCATION. The Council annually shall nominate to the House of Delegates a Committee on Postgraduate Education to consist of not less than seven members and shall nominate the chairman thereof. The function of the committee shall be to plan and make available programs of postgraduate education for members of The Society, to arrange and conduct the Clinical Congress of The Society, and to cooperate with university and other agencies within the state for the extension of postgraduate education of physicians.

PAR. 7. COMMITTEE ON PROGRAM OF THE SCIENTIFIC ASSEMBLY. The Council annually shall nominate to the House of Delegates one member of the Committee on Program of Scientific Assembly for a term of three years. The program committee shall consist of three members, each serving for a term of three years, and the chairman shall be the member who is serving the final year of his term of office. The function of the committee shall be to arrange the program of the annual meeting of the Scientific Assembly and to submit such program to the General Manager for publication not less than two months preceding the date of the annual meeting of the Scientific Assembly.

PAR. 8. CONNECTICUT COMMITTEE ON AMERICAN MEDICAL EDUCATION FOUNDATION (AMEF). Each component association shall name a Committee on American Medical Education Foundation, the chairman of which shall be an Active Member of The Society, and the chairman of each such committee, by virtue of his office, shall automatically be a member of the Connecticut Committee on American Medical Education Foundation. In addition to these eight members, the Council annually shall nominate to the House of Delegates an active member of The Society to be chairman of the Connecticut Committee on American Medical Education Foundation. The function of the committee shall be to disseminate information concerning the American Medical Education Foundation, to encourage members of The Society to contribute annually to the AMEF, to inform The Society about the generosity of members of The Society relative to other groups and, when indicated, to make recommendations to The Society on these and related matters.

PAR. 9. COMMITTEE ON STATE LEGISLATION. Annually, before the fifteenth of January, each component association shall send to the General Manager of The Society its nomination of an Active Member of The Society to membership on the Committee on State Legislation. The Council annually shall transmit these nominations to the House of Delegates and, in addition to these eight nominees, the Council shall nominate to membership on the committee the Delegates to the American Medical Association and shall nominate the chairman of the committee. The function of the committee shall be to study and review proposed state legislation pertaining to the public health and the practice of the healing arts, to consult with The Society's legislative agent and to advise him of the opinion of The Society on proposed or pending legislation, to draft and have introduced into the Connecticut General Assembly appropriate legislation for improving medical care and public health in the state, to advise members of The Society concerning proposed state legislation and to supervise and direct The Society's program with respect to state legislation.

PAR. 10. COMMITTEE ON NATIONAL LEGISLATION. The Council annually shall nominate to the House of Delegates a Committee on National Legislation to consist of not less than seven members and shall nominate the chairman thereof. The chairman of the Committee on State Legislation and the Delegates to the American Medical Association shall serve ex-officio as members of the committee with all rights and privileges. The function of the committee shall be to study and review proposed national legislation pertaining to the public health and the practice of the healing arts, to consult with The Society's legislative agent and to advise him of the opinion of The Society on proposed or pending legislation, to draft and have introduced into the United States Congress appropriate legislation for improving medical care and public health in the nation, to advise members of The Society concerning proposed national legislation and to supervise and direct The Society's program with respect to national legislation.

PAR. 11. COMMITTEE ON MEDICAL CARE OF VETERANS. The Council annually shall nominate to the House of Delegates a Committee on Medical Care of Veterans to consist of not less than five nor more than ten members and shall nominate the chairman thereof. The Committee on Medical Care of Veterans shall be the representative of The Society in all matters pertaining to the medical care of veterans. It shall confer from time to time with agencies concerned with the medical care of veterans, it shall inform The Society concerning the medical care of veterans in this state and related matters and, when indicated, shall recommend to the Council such procedural or statutory changes as it deems advisable.

PAR. 12. COMMITTEE ON MEDICAL ECONOMICS AND INSURANCE. Annually each component association shall nominate to the Council for transmittal to the House of Delegates an Active Member of The Society to serve as a member of the Committee on Medical Economics and Insurance. In addition to these eight nominees, the Council shall nominate not less than three nor more than five members of the committee and shall nominate the chairman thereof. The function of the committee shall be to study any and all of the business aspects of the practice of medicine wherein The Society can be of assistance to its members, to study and review insurance and protective plans designed to protect members of The Society and their families against the hazards of illness or disability, to advise members of The Society concerning these and related matters and, when indicated, recommend to the Council programs of potential benefit to members of The Society which can be inaugurated or endorsed.

PAR. 13. COMMITTEE ON THIRD PARTY PAYMENTS. The Council annually shall nominate to the House of Delegates a Committee on Third Party Payments to consist of not less than five members and shall nominate the chairman thereof. The function of the committee shall be to study existing and projected systems which provide payment for physicians' services by any public, private or cooperative agency, and to advise The Society concerning them. In its operations, the committee shall confer directly with agencies which have an interest and responsibility in systems that involve payment of physicians by third party agencies but, where other standing committees of The Society have direct relationships such as those of the Liaison Committee with CMS or the Committee on Medical Care of Veterans, the committee shall confer with such other standing committees rather than directly with the agencies involved. The committee shall also maintain active liaison with committees on third party payments of the component associations.

PAR. 14. COMMITTEE ON PUBLICATIONS. The Council annually shall nominate to the House of Delegates a Committee on Publications to consist of not less than five nor more than ten members and shall nominate the chairman thereof. The function of the committee shall be to provide assistance and guidance to the General Manager and his staff concerning all publications of The Society except "Connecticut Medicine". The committee shall not be concerned directly with the business or financial aspects of such publications, which aspects are the responsibility of the General Manager. The committee shall maintain close liaison with the Public Relations Division.

PAR. 15. EDITORIAL COMMITTEE OF "CONNECTICUT MEDICINE". The Council annually shall nominate to the House of Delegates an Editorial Committee of "Connecticut Medicine" consisting of not more than fifteen members in addition to the Editor and the President who shall serve ex-officio as members with all rights and privileges. The Editor shall serve as chairman of the Editorial Committee. The members of the committee insofar as feasible shall be capable of representing the various specialty divisions of medicine and the various geographic areas of the state. The function of the committee shall be to assist and guide the Editor in the acceptance or rejection of manuscripts for publication and to assist the Editor to maintain a high literary quality in "Connecticut Medicine". The committee shall not be concerned with the business or financial aspects of the publication of "Connecticut Medicine", which aspects are the responsibility of the Editor and the General Manager.

PAR. 16. COMMITTEE ON COUNTY AND LOCAL PUBLIC RELATIONS. Annually each component association shall nominate to the Council an Active Member of The Society to serve on the Committee on County and Local Public Relations. In addition to these eight nominees, the Council annually shall nominate to the House of Delegates not less than one nor more than five members and shall nominate the chairman of the committee. The function of the committee shall be to assist the committees on public relations of the component associations in developing and disseminating accurate and reliable information concerning matters of public interest in the field of medicine. The committee shall use its efforts to encourage cooperation by the committees on public relations of the component associations with local medical societies, allied professional groups, voluntary agencies, the press, radio, television and other groups within the respective counties in a program of public relations.

PAR. 17. COMMITTEE ON STATE AND NATIONAL PUBLIC RELATIONS. The Council annually shall nominate to the House of Delegates a Committee on State and National Public Relations to consist of eight members and shall nominate the chairman thereof. The function of the committee shall be to inquire into and pass upon such phases of public information as deal with the care of the sick and the practice of medicine, to keep the people of Connecticut accurately and reliably informed concerning matters of public interest in the field of medicine, to encourage cordial relations and understanding with communications media, and to cooperate with other committees of The Society and of the American Medical Association in a program of public relations.

PAR. 18. CANCER COORDINATING COMMITTEE. The Council annually shall nominate to the House of Delegates a Cancer Coordinating Committee. The membership of the committee shall include a chairman, one member from the cancer committee of each general hospital in Connecticut, and shall at all times include the President of the Connecticut Cancer Society and a representative of the State Department of Health. This Committee shall be governed by an Executive Committee designated by the Council, which shall include the chairman, President of the Connecticut Cancer Society, the representative of the State Department of Health, and six members selected from the other membership of the Committee. The purpose of the committee shall be to coordinate and integrate the efforts of the various agencies concerned with the study, prevention and treatment of cancer in Connecticut, to aid and encourage the establishment and maintenance of high professional standards in the cancer clinics of the general hospitals, and to organize and promote professional education regarding cancer in Connecticut.

PAR. 19. COMMITTEE ON AGING. The Council annually shall nominate to the House of Delegates a Committee on Aging to consist of not less than five nor more than ten members and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of various agencies whose functions may include some phase of the study of the aging processes or the care of the aged, to cooperate with other committees of The Society in the phases of their activities related to aging or the care of the aged, to cooperate with committees of the American Medical Association concerned with this matter, to maintain liaison regarding health problems of the aging with the Connecticut State Dental Society, the Connecticut Hospital Association, the Connecticut Association of Chronic and Convalescent Hospitals and similar organizations, and to develop and make available to members of The Society and all other persons interested in the problems of aging and the care of the aged information on all phases of these and related matters. When indicated, the committee shall recommend to the Council, and Committee on State Legislation for consideration, statutory changes which the Committee on Aging deems advisable to promote improvements in the care of the aging and aged.

PAR. 20. COMMITTEE ON EYE CARE. The Council annually shall nominate to the House of Delegates a Committee on Eye Care to consist of not more than fifteen members and shall nominate the chairman thereof. The membership of the committee shall include not less than four but not more than seven members of the Executive Committee of the Eye, Ear, Nose and Throat Section of the Scientific Assembly. The function of the committee shall be to coordinate and integrate the efforts of various agencies whose functions may include some phase of eye care, to cooperate with other committees of The Society in the eye care phases of their activities, to cooperate with committees of the American Medical Association concerned with the promotion of eye care, to develop and disseminate to members of The Society and other interested persons information on various phases of eye care and, when indicated, recommend to the Council, and the Committee on State Legislation for consideration, statutory changes designed to promote improvements in eye care within the state.

PAR. 21. COMMITTEE ON MATERNAL MORBIDITY AND MORTALITY. The Council annually shall nominate to the House of Delegates a Committee on Maternal Morbidity and Mortality to consist of not less than ten members and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of the various agencies concerned with the study and prevention of maternal morbidity and mortality in Connecticut, to aid and encourage the establishment and maintenance of high professional standards in prenatal and obstetrical care, and to organize and promote professional education in these and related matters in Connecticut.

PAR. 22. COMMITTEE ON PERINATAL MORBIDITY AND MORTALITY. The Council annually shall nominate to the House of Delegates a Committee on Perinatal Morbidity and Mortality to consist of not less than ten members and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of the various agencies concerned with the study and prevention of perinatal morbidity and mortality in Connecticut, to aid and encourage the establishment of high professional standards among those concerned with perinatal care and treatment, to organize and promote professional education in these and related matters in Connecticut, to encourage every hospital in Connecticut where maternity and newborn service is a functioning part of the staff activities to have an active committee on perinatal morbidity and mortality and to encourage component associations in the development of committees which can help in a consultative manner to correlate the study of perinatal morbidity and mortality in the hospitals in their areas.

PAR. 23. COMMITTEE ON STATE BLOOD BANK. The Council annually shall nominate to the House of Delegates a Committee on State Blood Bank to consist of not less than ten members and shall nominate the chairman thereof. The function of the committee shall be to promote the development and maintenance of a statewide blood bank system operating in the interests of the public and the medical profession, to cooperate with the State Department of Health and with other agencies in encouraging the establishment and maintenance of high professional standards in the operation of blood banks and to organize and promote professional education in Connecticut regarding the blood program and related matters.

PAR. 24. COMMITTEE ON ACCIDENT PREVENTION. The Council annually shall nominate to the House of Delegates a Committee on Accident Prevention to consist of not less than five members and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of the various agencies concerned with the study and prevention of accidents in Connecticut, to develop and implement standards for medical qualifications of vehicle operators, to encourage members of The Society to serve as consultants to various safety committees and groups, to encourage and assist the component associations in the development of liaison with community safety committees and councils, to cooperate with national and regional groups whose functions may include some phase of medical aspects of accident prevention and, when indicated, to recommend to the Council and the Committee on State Legislation for consideration, proposed statutory acts or amendments which it deems advisable.

PAR. 25. COMMITTEE ON MENTAL HEALTH. The Council annually shall nominate to the House of Delegates two members to serve on a Committee on Mental Health and shall nominate the chairman thereof. The committee shall consist of not more than eight members, each of whom shall serve for four years, and shall be nominated in such a manner that the terms of two members shall expire annually. The function of the committee shall be continually to study the provisions for the care of the mentally ill in Connecticut and those addicted to the use of habit-forming drugs and alcohol for the purpose of making information on these subjects available to members of The Society, to confer from time to time with the Connecticut Department of Mental Health and other mental health agencies, to organize and promote psychiatric specialties and, when indicated, to recommend to the Council and the Committee on State Legislation for consideration, proposed statutory acts or amendments which it deems advisable.

PAR. 26. COMMITTEE ON OCCUPATIONAL HEALTH. The Council annually shall nominate to the House of Delegates a Committee on Occupational Health to consist of not less than ten members and shall nominate the chairman thereof. The function of the committee shall be to exercise leadership in developing and improving occupational health services to all employees including those in small establishments, to bring to the attention of employers and employees the values of occupational health services, to attract and guide physicians in private practice in rendering part-time or consultant occupational health services, to assist the component associations in the development of occupational health programs and in helping employers locate physicians willing and qualified to direct and serve occupational health programs, to aid and encourage the establishment and maintenance of high professional standards among all practitioners concerned with any phase of occupational health, to organize and promote professional education in occupational medicine in Connecticut and to review and advise the Council, the Committee on State Legislation and the Committee on National Legislation concerning proposed legislation pertaining to occupational health.

PAR. 27. COMMITTEE ON PUBLIC HEALTH. The Council annually shall nominate to the House of Delegates a Committee on Public Health to consist of one member from each component association and such additional members as it may deem advisable and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of the various agencies in Connecticut concerned with public health, sanitation and the prevention of communicable diseases, to serve as liaison between The Society and the Connecticut State Department of Health and other official public health agencies, to aid and encourage the establishment of high professional standards in public health practice, to disseminate to all physicians information useful in the prevention of disease, to organize and promote professional education on preventive medicine in Connecticut and, when indicated, to recommend to the Council and the Committee on State Legislation for consideration, regulatory or statutory changes which it deems desirable to protect and promote the public health within the state.

Par. 28. Committee on Rehabilitation. The Council annually shall nominate to the House of Delegates a Committee on Rehabilitation to consist of not less than seven members and shall nominate the chairman thereof. The committee shall include at least one member from each of the following committees: Committee on Hospitals, Committee on State Legislation, Committee on Aging, Committee on Mental Health, Committee on Occupational Health and Committee on Public Health. The function of the committee shall be to assist in the coordination of medical, psychological, social, educational and vocational resources of the state in the development of effective rehabilitation programs, to acquaint members of The Society with the magnitude of the rehabilitation problem from the standpoint of the patients' needs and the opportunities available to physicians to help in the rehabilitation of their patients, to study and disseminate information on techniques useful in the organization of medical and other phases of rehabilitation at the community level, to organize and promote professional education regarding rehabilitation techniques, to cooperate with component associations of The Society and the American Medical Association whose functions may include some phase of rehabilitation and, when indicated, to recommend to the Council and the Committee on State Legislation for consideration, legislative enactments designed to promote improvements in the rehabilitation effort.

Par. 29. Committee on Rural Health. The Council annually shall nominate to the House of Delegates a Committee on Rural Health to consist of not less than five members and shall nominate the chairman thereof. The function of the committee shall be to coordinate and integrate the efforts of the various agencies in Connecticut whose functions may include some activities applicable to the problems of rural health, to interest and encourage physicians in rural medical practice, to organize and promote health education programs and self-help programs, to confer with state and local public health agencies regarding services for rural areas, to gather and disseminate information concerning the prevention of rural occupational health disorders, to provide communities with how-to-do-it information which will assist in coordinating the activities of rural organizations and physicians and, when indicated, to recommend to the Council and the Committee on State Legislation for consideration, legislative enactments designed to promote improvements in rural health within the state.

ARTICLE XII — DUES

Section 1. Prescription

Annual dues for Active Members shall be prescribed for the ensuing calendar year in an amount recommended by the Council and approved by the House of Delegates and shall be an equal per capita assessment upon each Active Member except that physicians who become Active Members during the latter half of a fiscal year will be assessed one-half of the annual dues for that fiscal year.

Section 2. Publications

Membership dues shall include subscriptions to "Connecticut Medicine" and such other publications of The Society as are intended for distribution to all Active Members.

Section 3. Exemptions

The dues of any member may be remitted by vote of the Council on recommendation of a Councilor or Associate Councilor elected by the respective component association provided there has been prior remission of dues by that association. Honorary Members, Life Members, Associate Members and Student Members shall not be subject to assessment of dues but may be charged for subscriptions to publications, registration fees at scientific sessions, and the like.

Section 4. Delinquency

An Active Member is delinquent if his dues are not paid by August first of the year for which dues are prescribed and shall forfeit his active membership in The Society if he fails to pay the delinquent dues within thirty days after notice of his delinquency has been mailed to his last known address by the General Manager of The Society. Active Members of The Society who have been dropped from the active membership roll for nonpayment of dues cannot be reinstated until such indebtedness has been discharged, but such indebtedness shall apply only to the one fiscal year of delinquency.

ARTICLE XIII — FUNDS AND EXPENSES

Section 1. Fiscal Year

The fiscal year of The Society shall commence on January first and terminate on December thirty-first of each year.

Section 2. Deposit Of Funds

All funds of The Society shall be deposited promptly upon receipt in a state or national bank.

Section 3. Budget

The annual budget of The Society for each fiscal year shall be prepared by the Counicl and shall be presented by the Treasurer to the House of Delegates for approval. The per capita assessment of dues and any other assessments for the ensuing fiscal year shall be recommended by the Council and shall be transmitted by the Treasurer to the House of Delegates for approval. No request or resolution appropriating funds of The Society shall be considered by the House of Delegates unless the Council has made prior review of such request or resolution and has transmitted recommendation thereon to the House of Delegates.

Section 4. Fidelity Bonds

All officers of The Society and other persons responsible for the receipt, custody and disbursement of Society funds shall be bonded at the expense of The Society by such fidelity bonds as the Council shall prescribe.

ARTICLE XIV — COMPONENT ASSOCIATIONS

Section 1. Definition

The County Medical Associations in Fairfield, Hartford, Litchfield, Middlesex, New Haven, New London, Tolland, and Windham Counties now in operation and in affiliation with The Connecticut State Medical Society shall be the component county associations, of The Society.

Section 2. Function

Par. 1. The function of the component medical associations shall be to bring together into one organization the physicians of each county and these associations shall be united for the purpose of organizing the medical profession in the State of Connecticut as provided in Article II of these Bylaws.

Par. 2. Each component medical association shall stimulate, foster and cooperate with the local medical societies in the county.

Section 3. Eligibility For Membership

Requirements for eligibility for membership in a component association shall be those determined by that association provided such requirements do not conflict with the Charter or Bylaws of The Society or with the Constitution or Bylaws of the American Medical Association.

Section 4. Transfer Of Component Association Membership

A member of a component association of The Society who removes his residence to another county within this state and who wishes to transfer his membership to the component association in the county of his new residence may do so upon the presentation of a certificate signed by the Secretary of the component association of which he is a member. This certificate shall state that he is a member in good standing in the component association in the county where he previously resided and that his financial obligations to that association for the current year have been paid. The certificate shall be accompanied by a regular application for membership. The component association in the county of his new residence shall add him to the rolls of that association without formality and without charging any dues for the remainder of the year of his transfer.

Section 5. Transfer From Another State Society

A member of a state medical society in another state, that is a component of the American Medical Association, wishing to transfer his membership to a component association of The Society shall present to the Secretary of the component association of The Society in which he is seeking membership a certificate from the Secretary of the county or state medical society of his previous residence. This certificate shall state that he is a member in good standing in that county or state medical association. This certificate and a properly completed application for membership shall be forwarded to the Board of Censors or Credentials Committee of the component association in this state in which he is seeking membership and that Board of Censors or Committee on Credentials may recommend his election at the next meeting of the component association subject to membership eligibility rules of that component association.

Section 6. Membership Roster

The Secretary of each component association shall keep an individual record of the members of that association, and this record shall include the full name, address, college degrees with year, medical schools attended with school and year of graduation, hospital affiliations, type of special practice, if any, and the date of registration in this state. Notations shall also be made concerning transfer and termination of membership.

Section 7. Discipline

Any member of a component association who is aggrieved by disciplinary action of the component association of which he is a member shall have the privilege of appealing to the Council of The Society which shall review the charges made against the disciplined member and the findings therein and render a decision concerning the disciplinary action taken; this shall be final.

Section 8. Termination Of Membership

When membership in a component association terminates for any cause, membership in the Connecticut State Medical Society shall be terminated automatically as of the same date.

Section 9. Dues

Any component association may, at its option, collect the annual dues assessed by The Society in conformity with regulations established by the Treasurer of The Society. Bills for these dues shall be rendered to all members immediately following January 1 of each year and the component association shall forward all monies so collected on behalf of The Society to the Treasurer of The Society quarterly and at such other times as the Treasurer may direct and they shall accompany all payments with a report on a form to be provided by the Treasurer. If a component association does not elect to collect the annual dues assessed by The Society as provided above, the Treasurer of The Society shall collect the annual dues assessed by The Society from the members of that component association and collect also the dues assessed by that county association. In that event, the Treasurer of The Society shall remit to the component association periodically all monies collected on behalf of that association and shall file an accounting of all component association assessments so collected for the year just closed with the component association before the 15th of January of each year.

Section 10. Bylaws

The component associations shall have the power to adopt only such bylaws as are not in conflict with the Bylaws of The Connecticut State Medical Society. In the event of an existing or apparent conflict, the Bylaws of The Society shall take precedence over those of a component association.

ARTICLE XV — AMENDMENTS TO BYLAWS

Section 1. Action

The Bylaws of The Society may be amended by a majority vote of the total number of the voting members of the House of Delegates.

Section 2. Procedure

Proposed amendments to the Bylaws shall be submitted to a meeting of the House of Delegates and shall immediately be placed upon the table without discussion. Such amendments shall lie upon the table until the next regular meeting of the House of Delegates and shall be published in CONNECTICUT MEDICINE on one or more occasions prior to that next meeting and shall be published in the call to that meeting, at which meeting the amendments shall be taken off the table and acted upon by the House of Delegates.

ARTICLE XVI — PARLIAMENTARY PROCEDURE

Section 1. Rules Of Order

In all matters of parliamentary procedure, the Society shall be governed by the most recent edition of Roberts Rules of Orders (Revised).

Section 2. Enablement Clause

The adoption of these Bylaws rescinds and revokes all previous Bylaws of The Society and supersedes their operation.

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